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ASTRONOMICAL OBSERVATIONS

MADE

DURING THE YEARS 1849 AND 1850,

AT THE

U. S. NAVAL OBSERVATORY,

WASHINGTON,

APPROVED BY

CAPTAIN D. N. INGRAHAM,
CHIEF OF THE BUREAU OF ORDNANCE AND HYDROGRAPHY,

AND PUBLISHED BY AUTHORITY OF

THE HONORABLE ISAAC TOUCEY,
SECRETARY OF THE NAVY.

BY
M. F. MAURY, LL.D., U. S. N.,
SUPERINTENDENT OF THE U. S. OBSERVATORY AND HYDROGRAPHICAL OFFICE,
WASHINGTON.

VOLUME V.

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INTRODUCTION.

The Observatory is also the Hydrographical Office of the Navy. It is likewise the depot at which the charts and instruments for the naval service are collected, and from which they are distributed to the public cruisers. Here, too, the Wind and Current Charts are constructed, the investigations connected with them conducted, and the Sailing Directions which accompany them prepared and published.

The chronometers and other nautical instruments are in the special charge of Lieutenant Julian Myers.

Lieutenant E. C. Stout, assisted by Lieutenant S. Magaw,* has charge of the service chart department. These two officers find full occupation in overhauling and setting aside charts that are worn out or that have been replaced by more recent and accurate surveys, in arranging them on the shelves, and in getting them out for use on board ship.

Other Lieutenants are employed in the construction of the Wind and Current Charts, or in the investigations connected therewith, or as hydrographers, varying in numbers according to the exigencies of the service. Within the last month or two this force has been largely increased. It consists at this time of Lieutenants E. G. Parrot, J. J. Guthrie, Henry S. Newcomb, T. T. Houston, and Robert L. May.

In the astronomical department the force consists of Mr. James Ferguson, Assistant Astronomer, Professors A. G. Pendleton, M. Yarnall, James Major, Joseph S. Hubbard, and A. W. Lawrence. The eyesight or health of Professors Pendleton, Hubbard, and Lawrence, is such as greatly to interfere with the due performance of their duties. Indeed, Professor Pendleton is entirely prevented by the state of his eyes from observing at all. Owing to the smallness of the force, and its disabled condition, the reduction of astronomical observations has fallen behind hand.

In a new country like this, where so many boundary lines have to be run, and where so many parties are engaged with geographical explorations, &c., in the field, the demand for special or corresponding observations is very considerable. This, with the increasing number of known asteroids, the observations connected with them, including the stars of comparison to which they are referred, and the impaired health of officers, have so interfered with the regular duties of the small astronomical force connected with the establishment as to have rendered a suspension of work on the general catalogue necessary.

The following order shows the detail for the current year:

"OBSERVATORY, WASHINGTON, *January* 6, 1859.

"*To the Officers engaged on Astronomical duties:*

"In consequence of the smallness of the astronomical force, and the amount of back work that has accumulated upon us, I invite the attention of observers and computors to the following arrangement:

"The instruments working in the Meridian will be employed chiefly in observing stars omitted in other catalogues, or stars of comparison, as they may be required by government expeditions, or by the Observatory and its correspondents. They will also observe, from time to time, for moon culminations and such other objects as may be specially designated. They will observe standard stars only for instrumental and clock errors. The reduction of all the observations to keep pace with the observations themselves.

"The Equatorial will be employed as heretofore.

"Besides attending to the current observations, gentlemen are requested to address themselves to back work, as follows:

* In the ten days that have elapsed since the above was written, these three officers have been ordered to sea. There frequent changes in the personnel of the establishment are unavoidable, but they operate as a great drawback. Each new comer has to be instructed as to his specialty, and often, by the time he has become familiar enough with its details and processes to be useful, he is called away on other service—the results of his labors, under such circumstances, being generally lost. Hence the force nominally on duty at the Observatory is necessarily not as effective as, judging by its number and the supposition that all are experts, it ought to be.

"Professors Pendleton and Major, and Mr. Ferguson, will take up the zone observations for reduction, beginning with the earliest.

"Professor Lawrence will take up the observations with the transit for 1851 and 1852. Professor Yarnall those of the Mural for the same years, and Professor Hubbard those of the Meridian Circle for the same time; Mr. Ferguson completing the back work of the Equatorial.

"Gentlemen will please bear in mind that it has been made, by command of the Secretary of the Navy, the special duty of the Observatory, after attending to those observations only which are of a pressing nature or of immediate practical importance, to make a complete catalogue of all the stars that the instruments here are capable of reaching.

"In carrying out this order observers will give preference to the subjects of observation, &c., accordingly.

"Respectfully, &c.,

"M. F. MAURY.

"Mr. JAMES FERGUSON, *Assistant Observer.*
"Professors A. G. PENDLETON,
"M. YARNALL,
"JAMES MAJOR,
"J. S. HUBBARD,
"A. W. LAWRENCE."

The Prime Vertical Transit Instrument is idle for the want of an observer; and for the same reason the Refraction Circle lies unpacked in the boxes. The Meridian Circle has been under repairs for the last two years. The circles originally belonging to it were found defective, and new ones have been fitted to it by William J. Young, of Philadelphia: It is now remounted and ready for work, under Professor Hubbard.

In September last I requested the Assistant Astronomer, Mr. Ferguson, to give his attention also to the arrangement and preparation of the observations for publication. Under his immediate supervision this volume has been prepared and passed through the press.

The following statement shows the condition of the observations herein presented at the time of the new arrangement.

The observations of the Transit made in the year 1849 by Professors Beecher and Keith, some of the preparatory reductions of which had been computed by these gentlemen and by Professor Winlock, making in all seventeen pages, had been finally reduced and prepared for publication by Professor Lawrence.

The observations of the same instrument for the year 1850, made also by Professors Beecher and Keith, and filling fifty-five pages, were in the hands of Professor Hubbard, to whom they had been assigned for reduction, and they had nearly all been reduced. The tables of results were subsequently prepared by Mr. Ferguson.

The work of the Mural Circle done in the years 1849 and 1850, in the former year by Professor Coffin and Lieutenant Steedman, and in the latter by Professor Benedict, and of which some of the preliminary computations had been made by Professor Coffin, had been finally reduced and prepared for publication by Professor Yarnall.

The observations of the Meridian Circle made in the years 1849 and 1850 by Professor Major, and by him reduced, filling eighty-three pages, were then ready for the press, and he was engaged in writing the prefatory remarks.

Of the Prime Vertical Transit, the observations for 1849 and 1850 had been made and reduced by Professor Hubbard and Lieutenant John L. Worden. The tables of results were also prepared by Mr. Ferguson.

The observations with the Equatorial for the two years above mentioned, which had been made and reduced by Mr. Ferguson, were also ready for publication, except that the places of many of the stars of comparison still depended upon the printed catalogues, and had not been observed by the fixed instruments of this Observatory. As this defect could be supplied by subsequent observations, it was not deemed necessary to delay the publication on this ground. The stars whose places were then wanting have, for the most part, been subsequently determined by observations of Professor Yarnall.

In observing with the Electro-Magnetic Chronograph, the Morse register is preferred chiefly on account of the circumstance that the machinery connected with it is less liable to derangement, and when out of order may be more readily repaired.

THE WEST TRANSIT INSTRUMENT.

This instrument has been minutely described in the introduction to the volume of observations for 1845.

The telescope has a clear aperture of 5.3 inches, and a focal length of 7 feet 1 inch. It is mounted upon large piers of granite, which rest firmly on a foundation of stone, extending ten feet below the surface of the ground.

The observers during the years 1849 and 1850 were Professor Mark H. Beecher and Professor R. Keith. For the determination of their personal equation the same star was observed by them alternately, over alternate wires at the same culmination. The mean of twenty-four observations gave the time by Professor Keith $0^s.36$ later than that by Professor Beecher. Putting K for Keith's time of transit, and B for Beecher's,

$$K = B + 0^s.36 \pm 0^s.012$$

In obtaining the rate of the clock, and in correcting the observations of one observer for the clock-error determined from the observations of the other, this quantity has been used.

The observations with this instrument occupy pages 1 to 74, inclusive, of the present volume.

The first column of each page contains the date, the day beginning with the transit of the sun.

The second contains the numbers for reference.

The third contains the name of the object observed. For stars, preference has been given in order to the name given in the Nautical Almanac, the Greek letter of the Catalogue of the British Association, the number of that catalogue with the name of the Constellation, the hour and number of Weisse's Catalogue, the number of other catalogues. Stars not found in any catalogue are designated by the declination alone.

Previously to July —, the fourth to the tenth column, inclusive, contain the seconds for the time of transit over each wire, as noted by the observer. Afterwards, the fourth column contains the position of the clamp. The fifth contains the set of wires over which the observations were made. The sixth to the tenth, inclusive, contain the seconds for the time of transit over each wire, as noted by the observer.

The eleventh contains the mean of the preceding times of transit over the wires observed.

The twelfth to the fourteenth column, inclusive, contain the reduction to the meridian, the reduction of the limb of a body to its centre, and the correction of the clock.

The reduction of an observation to the meridian involves three steps: first, the reduction of the mean of the wires observed to the mean of all; second, the reduction of the mean of all to the plane in which the instrument revolves; third, the reduction of this plane to the plane of the meridian.

Calling the first and second of these reductions taken in parts of a great circle C and c; and the third, also taken in parts of a great circle, m when the instrument points to the equator, and n when it points to the pole; and putting S for their correction in time at any declination δ, we shall have

$$S = C \sec. \delta + c \sec. \delta + n \tan \delta + m.$$

From the commencement of 1849 until April 2, 1850, the system of wires used consisted of seven vertical wires, and one horizontal in a fixed diaphragm, and five horizontal wires in a movable diaphragm. The intervals of these last were smaller than of the seven transit wires.

The reductions of each transit wire to the mean of the seven are as follows:

	To Jan. 17.	To Jan. 24.	To Sept. 7.	To April 2, (1850.)
	s.	s.	s.	s.
A	+ 37.481	+ 37.482	+ 37.536	+ 37.551
B	24.998	25.086	25.005	25.026
C	12.508	+ 12.536	+ 12.535	12.512
D	+ .046	— .077	.000	+ .010
E	— 12.508	12.570	— 12.499	— 12.521
F	25.006	25.002	25.020	25.031
G	— 37.519	— 37.457	— 37.548	— 37.546

the wires being lettered in order from the side next to the clamp of the axis.

On the 2d of April, 1850, after the introduction of the electro-magnetic method of recording had rendered shorter intervals desirable, the diaphragm containing the five wires with short intervals was turned 90°, and transits were observed over the five.

The reductions of each wire to the mean of the five are as follows:

(April 2 to July 18,) 1850.

A	+ 8ˢ.016
B	+ 4.045
C	+ 0.085
D	— 4.089
E	— 8.059

In July, 1850, a new diaphragm, constructed with special reference to the electro-magnetic method of recording, was introduced. It contained five sets or tallies of five wires each, the intervals in each set being very small and purposely unequal, in order to indicate the separate tallies used by an inspection of the observation. The approximate values for each set are as follows:

3ˢ.0	2ˢ.5	2ˢ.0	2ˢ.0	2ˢ.5
2.5	2.0	2.0	2.5	3.0
2.5	2.0	2.0	2.5	3.0
3.0	2.5	2.0	2.0	2.5

The reductions of the mean of each set to the mean of the twenty-five wires are as follows:

A	+ 57ˢ.549
B	+ 28.080
C	+ 0.003
D	— 28.046
E	— 57.585

C sec. δ has been corrected by means of the following table for stars near the pole, (arc — sin) being taken out for each wire observed, and the sum, divided by the number of wires, added to C sec. δ:

H. Angle.	(Arc — sin.)	H. Angle.	(Arc — sin.)	H. Angle.	(Arc — sin.)
m.	s.	m.	s.	m.	s.
3	0.00	12	0.33	21	1.76
4	.01	13	.42	22	2.03
5	.02	14	.52	23	2.32
6	.04	15	.64	24	2.63
7	.07	16	.78	25	2.97
8	.10	17	0.94	26	3.34
9	.14	18	1.12	27	3.74
10	.19	19	1.31	28	4.17
11	0 25	20	1.52	29	4.64

C was frequently determined with the collimating eye-piece. Putting 2Δ and $2\Delta'$ for the distance of the middle wire west of its image when the clamp is east and west respectively, $2p$ for the excess of the clamp pivot, r for the reduction of the mean of the wires to the middle wire, and a for the correction for diurnal aberration in latitude φ (for this Observatory $a = -0^s.016$).

$$C = \tfrac{1}{2}(\Delta - \Delta') - p + r + a \text{ for clamp east.}$$
$$C = -\tfrac{1}{2}(\Delta - \Delta') + p - r + a \text{ for clamp west.}$$

If b represent the depression of the eastern end of the axis,

$$b = -\tfrac{1}{2}(\Delta + \Delta') - p \text{ for clamp east.}$$
$$b = -\tfrac{1}{2}(\Delta + \Delta') + p \text{ for clamp west.}$$

Up to July 18, 1850, in measuring the quantites 2Δ and $2\Delta'$, the micrometer wire, then horizontal, was separated from a fixed wire until the space enclosed between them was judged to be equal to the interval between the middle wire and its image, and this space measured with the micrometer. After July 18, 1850, the micrometer wire, now vertical, was made to coincide first with the middle wire, then with its image, and the space measured with the micrometer.

The quantities n and m were determined from the observations, as often as they furnish the data, by means of the formulæ—

$$n = \frac{(\alpha - \tau) - (\alpha' - \tau') - c(\sec\delta - \sec\delta')}{\tan\delta - \tan\delta'}$$
$$m = b \sec\varphi - n \tan\varphi$$

in which α, τ and δ are respectively the right ascension, time of transit and declination of any star, and α', τ' and δ' those of another star differing as much as possible in declination, and but little in time.

The semi-diameters were interpolated from those given in the Nautical Almanac.

The correction of the clock has been determined on each day from all the Nautical Almanac stars observed south of 40° north declination, and a mean of the determinations adopted for the correction at a mean of the times of transit.

The fifteenth column contains the reduced right ascensions.

The sixteenth contains the reductions of stars to their mean places for the beginning of 1850. These have been computed from the tables in the appendix to the volume of observations for 1847.

On pages 388 to 398 have been collected the mean places of each star observed. Those rejected in taking the mean are enclosed in brackets.

On pages 420 to 425 are given the comparisons of the observations of the sun, moon, and planets, with their tabular places interpolated for the longitude of the Observatory, with 2d and 3d differences from the Nautical Almanac.

THE MURAL CIRCLE.

The Mural Circle is mounted in the east wing of the Observatory upon the eastern face of the sand-stone pier, to which it was removed in the latter part of the year 1845.

The Circle is a single casting of brass, five feet in diameter. The divisions are cut 5′ apart, in a band of gold, which is inserted in the rim. They are read by means of six of Troughton's reading microscopes, which are mounted firmly on the face of the pier and adjusted, as nearly as practicable, 60° from each other. The microscopes are designated in the observations by the letters A, B, C, D, E, F. They are adjusted, as to focal length, so that five revolutions of the micrometer-screw of each will measure one space, or 5′ of the circle. The micrometer heads are divided into sixty parts. In reading the circle, the seconds and parts are taken from each of the six microscopes, the degrees and minutes from A alone; which is mounted on the north side of the pier, and in the horizontal line which passes through the centre of the circle.

The other microscopes are so arranged, that

the readings for	B	C	D	E	F
= the readings for A	+ 180°,	+ 300°,	+ 120°,	+ 240°,	+ 60°, respectively.

The divisions are illuminated by a lamp placed behind the pier in a line with the axis of the instrument; the light from this lamp passes through six holes, drilled through the pier, directly to the reflectors attached to the several microscopes. A less variable illumination is thus secured than by means of lamps carried in the hands.

The circle is adjusted to a vertical position by means of a plummet suspended by a fine silver wire, with the aid of appendages attached to the telescope, known as Ramsden's Ghosts; and to its position in the meridian by observations of transits of circumpolar stars.

The telescope has an object-glass of four inches clear aperture, with a focal length of five feet. It is attached to an independent axis, moving within the axis of the circle, and may be moved to any position with reference to the graduations. The ends of the tube, or the cells supporting the object-glass and the micrometer, are firmly clamped to the rim of the circle. During these years the position of the telescope has been such that when directed to the zenith the circle reading has been nearly 20° 0′ 0″.

The eye-end of the telescope was, until the latter part of May, 1849, furnished with a fixed diaphragm, containing seven vertical wires, designated I, II, III, &c., nearly equidistant, and at an average interval apart of $15^s.4$ (of time,) and one horizontal wire designated as the fixed wire. At that date a new set of wires was inserted, consisting of five vertical wires inserted in the scores for II, III, IV, V, VI, and a new horizontal wire. These wires were broken out and renewed in June, 1850. The adjustments of this diaphragm consist in placing it in the principal focus of the object-glass; turning it so that an equatorial star will exactly run along the fixed wire; and, the circle having been adjusted to an exact vertical position and the telescope directed to the nadir, moving the diaphragm so that vertical wire IV will coincide with its image reflected from a surface of mercury and seen by means of the collimating eye-piece.

In connexion with the fixed diaphragm is another, movable by a micrometer screw, and furnished with five wires nearly parallel, and placed five, fifteen, fifteen, five revolutions of the micrometer apart. In the record of the work in which they are employed, they are numbered 1, 2, 3, 4, 5, in the order of the micrometer scale, *i. e.*, commencing in the southern part of the field of view; these were broken out and reinserted in the latter part of May, 1849, and June, 1850. The adjustment of this diaphragm consists in making wire 3 parallel to the horizontal fixed wire.

The head of the telescope micrometer is divided into one hundred parts. It is adjusted so that when wire 3 is moved into coincidence with the fixed wire the micrometer reading shall be $30^r.000$; 30^r indicating the notch of the micrometer scale which is intersected by the fixed wire. In reading the micrometer that notch of the scale is noted which the wire used in the observation has passed.

OBSERVATIONS.

The observations have been made with the micrometer wires, the circle being generally set on the nearest division, so as to avoid any error for runs, and kept in this position by means of a clamp until the bisections were made. These have generally been made—except for the circumpolar stars—on the vertical wires. Where an object has not been observed on these wires the time of each bisection or contact has been carefully noted.

In observing both limbs of a planet alternate contacts have been made with each limb.

In observing the sun and moon a separate setting of the circle has been made for each limb, and the times of making the contacts carefully recorded.

The instrument is furnished with screens to protect it in observations of the sun.

In all observations care has been taken to note the times of one or more bisections or contacts; to note the indications of the barometer and external thermometer, particularly the latter, and to read the circle immediately after or before observing the object.

In almost all the observations a power of 125 has been employed.

NADIR POINT.

The determinations of the nadir point have been made, as in the preceding years, by means of the collimating eye-piece. The telescope being directed downwards, the circle is set on 200° 0′ 0″ nearly, and wire 3, illuminated by means of this eye-piece, is made to coincide with its image reflected from a basin of mercury. Each determination consists generally of several such coincidences, the wire and its image being brought into coincidence from opposite sides. The circle is carefully read before and after the coincidences are made, and the micrometer zero is the mean of the readings of the telescope micrometer corrected for eccentricity of the micrometer head and the excess of the circle-reading above 200° 0′ 0″—or what it wants of that quantity—reduced to parts of a revolution. In cases where any other wire than wire 3 has been used a correction has been applied, to reduce its readings to that of wire 3.

VALUE OF ONE REVOLUTION OF THE TELESCOPE MICROMETER.

The following observations have been made by Professor Coffin in 1849, and Benedict in 1850, with the collimating eye-piece, for determining the equivalent of one revolution of the telescope micrometer.

Let C represent the Circle Readings, corrected for runs and errors of division (*);

m, the corresponding micrometer readings, when the wire employed is brought into coincidence with its reflected image, corrected for the eccentricity of the micrometer head (†);

n, the number of positions of the circle;

dm, a small quantity applied so as to make the several values of μ, multiples of $2^r.39$, the equivalent nearly of 2′ 30″.

$$\mu = m - \frac{1}{n}\Big[m\Big] + dm$$

$$a = C - \frac{1}{n}\Big[C\Big] + 62''.75\ dm$$

The relation of the micrometer to the field of view, so far as following a regular law, is expressed by the equation:

$$\mu r + \left(\mu^2 - \frac{1}{n}\Big[\mu^2\Big]\right)\Delta r + \mu^3\,\Delta' r + \&c. \quad = a$$

in which r represents the equivalent of one revolution in the middle of the field, or at the fixed horizontal wire.

Each set of observations presents a symmetrical series, so that $\frac{1}{n}\,[m]$ is nearly $30r$.

The micrometer wire employed has been the middle one, or that designated as wire 3.

---

* Table A, Wash. Ast. Obs., Vol. II, Int., page xii.

† Table E, Wash. Ast. Obs., Vol. II, Int., page xviii.

TABLE D.—VALUE OF TELESCOPE MICROMETER.

Date.	Corrected Circle Reading. C.	No. of Readings.	Corrected Mic. Reading. m.	No. of Readings.	EQUATIONS. μ	$\frac{\mu^2 - \frac{1}{n}[\mu^2]}{2.39^2}$	a	Values of r and Δr.	
1849.	° ′ ″		w. r.				′ ″		″
April 3	199 47 25.84d*	4	2 18.7915 3 .7893	10 10	− 11.95	+ 15 (Δr)	= − 12 29.91	2μ = 23.90	r = 62.807
	49 57.64	4	2 21.2257 3 .2148	10 10	9.56	+ 6	10 0.60	19.12	.801
	52 25.79d	4	2 23.5754 3 .5749	10 10	7.17	− 1	7 30.25	14.34	.834
	54 58.24	4	2 26.0131 3 .0204	10 10	4.78	6	5 1.06	9.56	.825
	57 26.04d	4	2 28.3472 3 .3535 4 .3577	10 10 10	− 2.39	9	2 29.86	4.78	.827
	59 59.34	4	3 30.8045 4 .8045	10 10	0.00	− 10	− 0 0.43	(h = 7.4)	r = 62.8115
	200 2 25.44d	4	3 33.1214 4 .1150	10 10	+ 2.39	9	+ 2 30.45	30 × 2.39² Δr	= + 1.27
	4 59.96	4	3 35.5961 4 .5933	10 10	4.78	6	4 59.54	12	− .44
	7 25.30d	4	3 37.8917 4 .8897	10 10	7.17	− 1	7 30.78	2	− .53
	10 0.26	4	3 40.3681 4 .3714	10 10	9.56	+ 6	10 0.16	12	+ 1.51
	12 26.02d	4	3 42.6737 4 .6781	10 10	+ 11.95	+ 15	+ 12 31.18	18	− .59
								10	+ .43
	199 59 57.26		30.7645						
	h = 11							(40.2) Δr	+ 0.0047
June 20	199 57 32.42d	2	3 28.3143	8	− 2.39		− 2 30.16	2μ = 4.78	r = 62.829
	200 2 32.85d	2	33.0960	8	+ 2.39		2 30.16		
	200 0 2.64		30.7051						
June 26	199 47 29.91d	4	1 18.7027 2 .7019 3 .7048	8 8 8	− 11.95	+ 15	− 12 31.48	2μ = 23.90	r = 62.857
	50 0.56	4	1 21.0877 2 .0925 3 .0856	8 8 8	9.56	+ 6	10 0.55	19.12	.840
	52 28.77d	4	1 23.4554 2 .4547 3 .4518	8 8 8	7.17	− 1	7 30.79	14.34	.849
	54 59.80	4	1 25.8522 2 .8585 3 .8543	8 8 8	− 4.78	− 6	5 0.45	9.56	.845

* (d.) Double reading. (Δr) = 2.39² Δr.

TABLE D.—Continued.

Date.	Corrected Circle Reading. C.	No. of Readings.	Corrected Mic. Reading. m.	No. of Readings.	EQUATIONS. μ	$\frac{\mu^2 - \frac{1}{n}[\mu^2]}{2.39^2}$	α	Values of r and Δr.	
1849.	° ′ ″		w. r.				′ ″		″
June 26	199 57 28.48d	4	1 28.2127 2 .2117 3 .2189 4 .2073	8 8 8 8	− 2.39	− 9 (Δr)	= − 2 29.66	2μ = 4.78	r = 62.810
	59 58.54	4	2 30.6081 3 .6126 4 .6118	8 8 8	0.00	10	− 0 0.21	(k = 7.4)	r = 62.849
	200 2 28.14d	4	2 32.9886 3 .9894 4 .9448 5 .9768	8 8 8 8	+ 2.39	9	+ 2 30.57	30 × 2.39² Δr	= − 0.67
	4 59.86	4	3 35.4055 4 .4057 5 .3987	8 8 8	4.78	6	5 0.35	12	+ .40
	7 28.67d	4	3 37.7701 4 .7714 5 .7767	8 8 8	7.17	− 1	7 30.47	2	.32
	9 58.76	4	3 40.1506 4 .1613 5 .1567	8 8 8	9.56	+ 6	10 0.94	12	+ .11
	12 29.18d	4	3 42.5521 4 .5553 5 .5578	8 8 8	+ 11.95	+ 15	+ 12 30.81	18	− .90
	199 59 59.15		30.6175					10	+ .21
								(40.2) Δr	= − 0.0029
July 30	199 44 58.09	4	1 16.1950 2 .2064 3 .1993	8 8 8	− 14.34	+ 20	− 15 1.03	2μ = 28.68	r = 62.840
	49 59.04	4	1 20.0002 2 .9983 3 .9912	8 8 8	9.56	0	10 1.11	19.12	.861
	54 59.68	4	1 25.7734 2 .7743 3 .7782	8 8 8	− 4.78	− 12	− 5 0.39	9.56	.822
	59 60.27	4	2 30.5479 3 .5581 4 .5547	8 8 8	0.00	16	+ 0 0.31	(k = 3.7)	r = 62.845
	200 4 59.42	4	3 35.3250 4 .3206 5 .3208	8 8 8	+ 4.78	− 12	5 0.19	40 × 2.39² Δr	= + 0.20
	9 57.16	4	3 40.0513 4 .0622 5 .0556	8 8 8	9.56	0	10 0.79	0	− .31
	14 58.61	4	3 44.8528 4 .8500 5 .8543	8 8 8	+ 14.34	+ 20	+ 15 1.23	24	+ .20
								16	− .31
	199 59 58.90		30.5366					(49.3) Δr	= + 0.0008

TABLE D.—Continued.

Date.	Corrected Circle Reading. C.	No. of Readings.	Corrected Mic. Reading. m.	No. of Readings.	EQUATIONS. μ	$\frac{\mu^2 - \frac{1}{n}[\mu^2]}{2.39^2}$	a	Values of r and Δr.	
1849.	° ′ ″		w. r.				′ ″		″
Oct. 26	199 44 58.08	4	1 16.1926 2 .1865 3 .1775	8 8 8	− 14.34	+ 20	(Δr) = − 15 0.64	$2\mu = 28.68$	$r = 62.799$
	49 59.67	4	1 20.9909 2 .9859 3 .9867	8 8 8	9.56	0	10 0.45	19.12	.855
	54 59.28	4	1 25.7530 2 .7613 3 .7617	8 8 8	− 4.78	− 12	5 0.27	9.56	.798
	59 58.95	4	1 30.5380 2 .5440 3 .5289	8 8 8	0.00	16	+ 0 0.50	$(h = 3.7)$	$r = 62.815$
	200 4 59.35	4	1 35.3214 2 .3103 3 .3110	8 8 8	+ 4.78	− 12	+ 5 0.08	$40 \times 2.39^2\ \Delta r$	$= -0r.20$
	9 59.02	4	1 40.0638 2 .0695 3 .0735	8 8 8	9.56	0	10 1.34	0	+ .89
	14 59.26	4	1 44.8648 2 .8697 3 .8662	8 8 8	+ 14.34	+ 20	+ 15 0.45	24	.20
								16	+ .49
	199 59 59.09		30.5313					(49.3) Δr	= + 0.0003
1850. Dec. 11	199 49 64.67	1	3 21.5865	5	− 9.56	+ 8	− 10 0.53	$2\mu = 19.12$	$r = 62.844$
	54 64.87	1	3 26.3746	5	− 4.78	− 4	5 0.83	9.56	.924
	59 64.27	1	3 31.1378	5	0.00	8	− 0 0.38	$(h = 4.5)$	$r = 62.860$
	200 4 65.05	1	3 35.9131	5	+ 4.78	− 4	+ 5 0.72	16 (Δr)	= + 0.49
	9 64.00	1	3 40.6712	5	+ 9.56	+ 8	+ 10 1.02	8	0.11
								8	+ 0.38
	200 0 4.57		31.1366					(19.6) (Δr)	= + 0.0307 Δr = + 0.0054
Dec. 12	199 49 63.55	1	3 21.5744	5	− 9.57	+ 8	− 10 0.49	$2\mu = 19.12$	$r = 62.864$
	54 63.58	1	3 26.3604	5	− 4.78	− 4	5 0.97	9.56	.923
	59 63.05	1	3 31.1218	5	0.00	8	− 0 0.44	$(h = 4.5)$	$r = 62.876$
	200 4 63.60	1	3 35.9032	5	+ 4.78	− 4	+ 5 0.42	16 (Δr)	= + 0.99
	9 63.32	1	3 40.6728	5	+ 9.56	+ 8	+ 10 1.48	8	0.55
								8	0.44
	200 0 3.42		31.1266					(19.6) (Δr)	= + 0.0619 Δr = + 0.0108

The following table E contains the reduction to parallelism with the horizon for mic. wire 3. They are derived from observations of stars, where several bisections have been made at the same culmination; and are the corrections to be applied to the readings of the micrometer or circle, according to the terms in which they are expressed, when the observations have been made at vertical wires III or V; and they are multiplied by two for observations made at wires II or VI, and by three for observations made at wires I or VII.

TABLE E.—REDUCTIONS AT VERTICAL WIRE III.

DATE.	Δm_3^{III}	Δc_3^{III}	DATE.	Δm_3^{III}	Δc_3^{III}
	r	"		r	"
1849.—Jan. 4 to Jan. 27	+ 0.0008 =	— 0.05	1849.—May 17 to May 18	+ 0.0143 =	— 0.90
Feb. 3 to Feb. 10	.0014	.09	June 4 to June 22	+ .0014	— .09
Mar. 10 to Mar. 31	.0016	.10	July 2 to July 30	— .0005	+ .03
April 3 to April 30	.0012	.08	Sept. 24 to Oct. 11	— .0002	+ .01
May 2 to May 14	+ 0.0013	— 0.08	Oct. 25 to Nov. 7	0.0000	0.00
1850.—June 5 to June 11	— 0.0091 =	— 0.57	1850.—Sept. 2 to Sept. 24	— 0.0019 =	+ 0.12
July 1 to July 25	.0018	+ .11	Oct. 3 to Oct. 31	.0024	.15
Aug. 9 to Aug. 31	— 0.0021	+ 0.13	Nov. 1 to Nov. 30	— 0.0031	+ 0.20

The coincidences of the other wires at vertical wires I, IV, and VII, have also at several times been determined. The differences of the coincidences for wire 3 from these, $\Delta m_w^v = (3)^v - (w)^v$, ($v$ symbolizing the vertical, and w the micrometer wire) are given in the following table F. They constitute the reductions of the micrometer readings, when the observations have been made with the other wires, to what they would have been, if mic. wire 3 had been employed.

TABLE F.—REDUCTION OF MICROMETER OBSERVATIONS, Δm_w^v

For Mic. Wire	2.			4.			5.		
At Vertical Wire	I. Δm_2^I	IV. Δm_2^{IV}	VII. Δm_2^{VII}	I. Δm_4^I	IV. Δm_4^{IV}	VII. Δm_4^{VII}	I. Δm_5^I	IV. Δm_5^{IV}	VII. Δm_5^{VII}
1849.									
February 19	+ .3016	+ .0821	+ .0734	+ .1634	+ .1397	+ .1198	+ .1327	+ .1219	+ .1024
24	.1069	.0867	.0705	.1496	.1429	.1236	.1247	.1190	.1080
				.1619	.1457	.1272	.1371	.1252	.1136
March 29	+ .0983	.0900	.0686	.1669	.1491	.1289	.1451	.1324	.1238
April 3		+ .0936			+ .1423			.1195	
May 20				+ .2498	+ .2707	+ .2901			

	1.			2.			4.			5.		
June 26		— .0012			+ .0044			— .0098			— .0166	
27	+ .0081	.0044	— .0066	— .0001	— .0126	— .0119	— .0156	.0130	— .0404	— .0146	.0203	— .0194
July 19		.0010			— .0065							
30		.0008			+ .0022			.0147			.0213	
Oct 26		— .0065			.0093			.0155			.0181	
27	+ .0174	+ .0019	— .0125	+ .0155	+ .0050	— .0011	— .0049	— .0112	— .0127	— .0141	— .0148	— .0138

PRINTED OBSERVATIONS.

The observations with the Mural Circle occupy pages 76 to 119 of this volume.

Column 1 of the left-hand page contains the date of the observations, the day commencing with the culmination of the sun.

Column 2 contains the number for reference. The asterisks indicate the observations which are referred to in the notes in the column on the right-hand page, headed Remarks.

Column 3 contains the names of the object observed. They have been taken from the several catalogues of stars in the following order of preference:

Nautical Almanac;

Catalogue of the British Association;

Weisse's Catalogus Stellarum ex Zonis Regiomontanis;

Bessel's Zones;

Lalande's Catalogue published by the British Association;

Piazzi's Catalogue;

Rumker's Catalogue of 12,000 fixed stars.

Stars not found in any of these are marked "Anonymous." The right ascensions and magnitudes (when noted) of those not found in the Catalogue of the British Association are given in the column of Remarks. Stars contained in that catalogue are designated simply by the constellation and number.

Column 4. The numbers in this column indicate the vertical wire, or the position between two vertical wires, at which the object was at the mean of the instants of observation. In 1849 the designation of the wires is I, II, III, IV, V, VI, VII. In 1850 the designation is I, II, III, IV, V.

Column 5 contains the hour angle at which the object was observed. It gives the mean of the hour angles of the several observations of each limb of the sun or moon, and the mean of all the hour angles when only one limb was observed, and the mean for the several observations of the circumpolar stars, except for Polaris, when the hour angle of each bisection is given.

The hour angle for the sun or moon is $h' = (\tau - a)\left(1 - \frac{da}{3610^s}\right)$;*

a representing the right ascension of the object, τ the sidereal time of observation, and da, the motion in right ascension in one hour of mean time. The right ascension of these bodies has been interpolated from the Nautical Almanac, with the assumed longitude from Greenwich, $5^h\ 8^m\ 14.64^s$ West.

Columns 6 to 12 contain the readings of each of the six circle microscopes, with their mean; the degrees and minutes are taken from microscope A alone.

Column 13 contains the mean of the readings of telescope micrometer reduced to the meridian; when any other wire than wire 3 has been used, its number and the reduction to wire 3 are given in the column of Remarks.

The reduction to the meridian is expressed by the formula,

$$dm = -\overset{r}{0.00206} \tan \delta\, (IV - v)^2;$$

in which v denotes the vertical wire, or the position between two vertical wires, at which the observation was made, or it is taken from table XIII, vol. I. The sign of this reduction is changed for direct observations below the pole, and for observations by reflection of stars above the pole.

* Table XIV, Wash. Ast. Obs., Vol. I, App., page 76.

In addition to the correction for reduction to the meridian, the numbers of this column have been corrected for eccentricity of the micrometer head by the following table E, vol. II.

Mic. readings.	Correction.	Mic. readings.	Correction.
— .00	— 0.0000	— .50	— 0.0023
.05	05	.55	19
.10	10	.60	14
.15	15	.65	08
.20	20	.70	— 01
.25	24	.75	+ 04
.30	28	.80	09
.35	29	.85	10
.40	28	.90	09
.45	27	.95	+ 06
— .50	— .0023	— .00	.0000

Column 14 contains the micrometer zero, or the mean value of the readings of the telescope micrometer, corrected for eccentricity and the excess of the circle reading above 200° 0′ 0″, or what it wants of that quantity, reduced to parts of a revolution, as explained under the heading Nadir Point.

Column 15 contains the readings of the barometer, (which is one of Newman's.)

Column 1 of the right-hand page contains "the numbers for reference," and is a repetition of column 2 of the left-hand page.

Column 2 contains the readings of the thermometer attached to the barometer.

Column 3 contains the reading of the external thermometer, which is placed on the north side of the observing room, outside.

The thermometer used was that which is designated as No. 2 in the Appendix of the Washington Observations, vol. I, (pages 45, 46,) from which the following corrections of its scale are quoted.

TABLE I.—REDUCTIONS OF SCALE READING TO NORMAL TEMPERATURE.

Therm. Scale.	No. 2.	Therm. Scale.	No. 2.	Therm. Scale.	No. 2.
°	°	°	°	°	°
5	— 0.21	48	+ 0.12	76	+ 0.09
10	.22	50	.13	78	.08
15	.17	52	.12	80	.06
20	.11	54	.11	82	.05
25	.06	56	.11	84	.03
30	— .02	58	.10	86	+ .02
32	.00	60	.10	88	— .01
34	+ .02	62	.10	90	.03
36	.04	64	.09	92	.03
38	.06	66	.09	94	.04
40	.08	68	.10	96	.04
42	.09	70	.12	98	.05
44	.10	72	.11	100	— 0.06
46	+ 0.11	74	+ 0.10		

Columns 4, 5, and 6 contain the readings of the several thermometers attached to the instrument, viz: one inside of the stone pier, and two upon the face of the pier—the one a few inches above, the other a few inches below the rim of the circle.

Column 7, headed "Corrections for Instrument," contains the value of $g - l$, where g represents the value of the mic. zero, and l the corrected mean reading of the telescope micrometer (reduced) reduced to minutes and seconds of arc, and for observations of the sun and moon the reduction μ, due to their change of declination in the siderial interval h from the meridian, of each observed contact of a limb obtained from the expressions,

$\mu = h \Delta' \delta$

$h = \tau - \alpha$ expressed in seconds of time;

$\Delta' \delta = \frac{\Delta \delta}{3610} = .000277\ \Delta \delta$ for the sun;

$\Delta' \delta = \frac{\Delta \delta}{601.6} = .001662\ \Delta \delta$ for the moon;

$\Delta \delta$ being the change of declination for the sun in one hour, or for the moon in ten minutes of mean time.

Column 8 contains, under the heading of "Corrections for Objects:"

1. The reduction for atmospheric refraction, computed from Bessel's tables, for the observed zenith distance and the readings of the barometer and the attached and external thermometers, (the latter corrected by the quantities in table I, page XVII.) An expansion of these tables is given in the Washington Observations, vol. 1, Appendix, pages 58—71. C′ representing the mean circle reading of column 12, corrected for "Correction for Instrument," column 7, right-hand page; the observed zenith distance $z = C' - 20°$, and for stars whose north dec. is greater than the lat. $+ 20°$ $z = C' - 38°$. The correction for refraction, as applied to the circle readings, is affected with the sign of this remainder.

2. The reduction for parallax, in observations of the sun, moon, and planets, obtained from the formulas:

for the sun and planets, $\log p$ (in seconds) $= 0.93280 + \log \text{sine}\ (z' - 11' 14'' .54) - \log d;$

for the moon, $\log \text{sine}\ p' = \log \text{sine}\ \pi + \log \text{sine}\ (z' - 11' 14'' .54) + 9.9994302,$

or $\log p'$ (in seconds) $= \log \pi$ (in seconds) $+ \log \text{sine}\ (z' - 11' 14'' .54) + 9.9994302,$

$+ \log \frac{\text{sine}}{\text{arc}}$ (for π) $\log \frac{\text{arc}}{\text{sine}}$ (for p')*

$p = p' \mp \frac{1}{2} (p' \mp s) \text{ sine } p' \text{ sine } s,$†

the *upper* sign being adapted to an observation of the *upper* limb, the *lower* sign to an observation of the *lower* limb. In these expressions

z' represents the observed zenith distance, corrected for refraction;

d, the distance of the sun or planet from the earth;

π, the equatorial horizontal parallax of the moon, which for these observations has been interpolated from the Nautical Almanac, with second differences;

s, the moon's semi-diameter;

and p, the required reduction for parallax, which, as applied to the circle reading, is affected with the sign —.

Assuming from Bessel's most recent determination for the terrestrial spheroid, $\frac{1}{p} = .003343$,

and from Encke, the mean horizontal parallax of the sun, $P = 8''.5776$;

the reduction for the latitude, 38° 53′ 39″.25, is — 11′ 14″.54,

$\log \rho = \log \frac{B}{A} = 9.9994302$, and

$\log \rho P = 0.93280$.

The reductions for refraction and parallax have been computed for the observed limbs of the sun or moon, or for each limb separately, when both have been observed.

3. A reduction on account of defective illumination, applied in some cases to observations of one of the limbs of the moon, Venus, or Mercury. Such cases, together with the corrections applied, are noted in the column of Remarks.

Let a represent the difference of the right ascensions of the moon or planet, and sun,

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* Tables IX and X, Wash. Obs., Vol. I, App. p. 74.

† Table XI, Wash. Ast. Obs., Vol. I, App. p. 74.

δ_s, the declination of the sun,

δ_m, the declination of the moon, or planet,

s, the apparent semi-diameter of the moon or planet, and

θ, the angle of position of the line joining the cusps;

then $$\tan \theta = \operatorname{cosec} a \cos \delta_m, \tan \delta_s - \cot a \sin \delta_m,$$

a negative value of which indicates a defective illumination of the *north* limb;

and, ϑ being taken numerically less than 90°, the correction for an observation of a *cusp* becomes

$$ds = s \text{ versin } \theta,$$

to be applied to the observation of the defective limb, so as to augment the measured diameter.

For Mercury, θ may readily be obtained from a celestial globe, by bringing the geocentric place of the planet to the zenith point of the globe, and passing the quadrant of altitude through the sun's place; ϑ is then the arc on the horizon intercepted between the quadrant of altitude and the east or west points; the *northern* or *southern* position of this arc indicating, respectively, a full illumination of the *north* or *south* limbs;

If we take i to represent the angular distance of the sun and earth, as viewed from the moon or planet, and make

$$\sin \theta' = \sin \quad \sin i,$$

the correction for an observation made on the *gibbous* portion of the disk becomes

$$ds = s \text{ versin } \theta'$$

For Mercury and Venus, ϑ' may be obtained more conveniently from a celestial globe, by bringing the planet's geocentric place to the south point of the horizon, and measuring the altitude or depression of its heliocentric place; an *elevation* indicating a defective illumination of the *north* limb, a *depression* a defective illumination of the *south* limb.

The proximity of the moon to the earth affords for that body a more convenient method of determining ϑ', by the substitution of geocentric for heliocentric places.

Making $$\tan \delta' = \tan \delta_m \cos a;$$
$$\sin \theta' = \sin (\delta_s - \delta') \cos \delta_m \sec \delta',$$

a *negative* value of which indicates a defective illumination of the *north* limb.

4. The reduction for semi-diameter, when only one limb of the sun, or a planet, or either limb of the moon has been observed, obtained from the expressions,

$$\log s = 2.9826782 - \log d \qquad \text{for the sun;}$$

$$\left.\begin{aligned} \log \sin s &= 9.4353665 + \log \sin \pi \\ \text{or } \log s &= 9.4353665 + \log \pi + \log \frac{\sin}{\text{arc}} \text{ (for } \pi) + \log \frac{\text{arc}}{\sin} \text{ (for } s) \text{ *} \end{aligned}\right\} \text{for the moon;}$$

and from the Nautical Almanac, for the planets.

Column 9 contains the corrected readings, obtained by applying the reductions in columns 7 and 8 to the mean of the circle readings in column 12 of the left-hand page.

For the sun, moon, and planets, when both limbs have been observed, the corrected reading for each limb is given. In such cases, half the difference of the two corrected readings constitute the observed semi-diameters in the column of remarks.

Column 10 contains the "Apparent Declinations," deduced from the observations. Representing by C″, the corrected reading in column 9; and assuming the latitude of the Observatory to be 38° 53′ 39″ .25 north; the apparent declination,

	°	′	″		
$\delta =$	58	53	39.25 − C″,	for an observation	*direct, above* the pole,
$= -$	238	53	39.25 + C″,	" "	*direct, below* the pole,
$= -$	161	6	20.75 + C″,	" "	*by reflection, above* the pole,
$=$	341	6	20.75 − C″,	" "	*by reflection, below* the pole.

* Table IX, X, Wash. Ast. Obs., Vol. I, App. p. 74.

The declinations in this column for the sun, moon, and planets, are the declinations of the centres of these objects. Those of Polaris are the mean results of all the observations at the same culmination, combined by means of the formulas in §11, page xxvii, Wash. Ast. Obs., vol. II, Int.

Column 11 contains, for the fixed stars, the reductions to the mean equinox and ecliptic at the commencement of the year 1850, or at that moment of time when the sun's mean longitude will be 281°.* They have been computed by means of Bessel's formulas, with Struve's constant of aberration, and the co-efficients for nutation and precession in the Introduction to the Catalogue of the British Association.

The proper motions obtained from the catalogue in the Nautical Almanac for 1848, or from the Catalogue of the British Association, are included.

The reductions include, also, the terms depending on 2☾, and other minor terms, given in in Peters' "Numerus Constans Notationis."

Column 12 contains the initials of the names of the observers, Lieutenant Steedman and Professor Coffin; the former of whom was ordered on active duty early in the summer, and the latter was prevented from observing, except at intervals, by a disease of the eyes, which compelled him to cease from observing early in November.

The observations of 1850 were made by Professors Benedict and Hubbard.

Column 13 contains remarks made upon the observations quoted from the Observing books, and designated by the reference numbers; also upon the nadir points, among which are given half the estimated distances of Vertical wire IV from its reflected image, under the designation of apparent error of collimation.

MEAN DECLINATIONS, 1850.0.

Pages 399 to 403 contain the mean declinations for 1850.0 of the several stars, as determined from the observations with this instrument. They have been obtained by applying to the apparent declinations in column 10, right-hand page of the printed observations, the reductions to 1850.0 in column 11.

The brackets indicate the observations which, in general, for reasons stated in the notes to the printed observations, are regarded as deserving rejection.

The weights, *hh*, assigned to the several observations of Polaris, are obtained from the formulas in §§ 9 to 11, (Wash. Ast. Obs., vol. II, Int., page xvii.)

In the General Catalogue are given for each star the mean results of these declinations.

APPARENT DECLINATIONS AND VERTICAL SEMI-DIAMETERS OF THE SUN, MOON, AND PLANETS.

Pages 426 to 431 contain the apparent declinations of the centres of the sun and planets, transferred from column 10 of the right-hand page of the printed observations, (omitting those regarded as deserving rejection;) also the apparent declinations of the centre of the moon, carried out for each limb separately, when both have been observed. These are accompanied by the Washington mean time of observation, computed from the sidereal times.

The limb observed, when only one;

The seconds of declination interpolated with the long. $5^h\ 8^m\ 14.54^s$, from the Nautical Almanac, except those of Neptune, which have been taken from Mr. S. C. Walker's Ephemeris, published by the Smithsonian Institution;

The differences of the computed from the observed declinations, or "C — O;"

The reductions for defective illumination which have been applied to some of the observations of the moon.

There are also given;

The observed vertical semi-diameters, transferred from column of remarks, printed observations;

The computed semi-diameters, for the planets, taken from the Nautical Almanac; for the sun and moon computed by means of the formulas, page XIX;)

The difference of the computed from the observed semi-diameters, or "C — O."

* 1850, January 1. 0h. 13 m. mean time, Washington.

From these last we have for the excess of the measured over the tabulated semi-diameters:

	″			
of the Sun,	2.07	from 14	observations by	Professor Coffin;
	2.38	4	"	Lieutenant Steedman;
Moon,	3.79	2	"	Professor Coffin;
Venus,	1.08	10	"	Professor Coffin;
Jupiter,	0.98	4	"	Professor Coffin;
Jupiter,	1.98	2	"	Lieutenant Steedman;

and from eight observations made in 1850, by Professor Benedict, the excess of the measured over the tabulated semi-diameter of Venus, 0″.48.

In observing these bodies it is easier to bring the edge than the middle of the wire into contact with the limb. A part of this excess is doubtless due to this mode of observing, and hence a deduction of 0″.8, the semi-diameter of a wire, may be allowed. These quantities are approximately the corrections which should be applied to declinations, which have been obtained from observations of one limb only; with the sign — for observations of the north and the sign + for those of the south limb.

THE MERIDIAN CIRCLE.

The Meridian Circle is represented in plates VII and VIII, Vol. I. The object-glass of the telescope has a clear aperture of 4.5 inchés and a focal distance of 58.2 inches. The circle is 30 inches in diameter, divided on the face into arcs of 3′ by heavy lines cut in silver. The subdivision is effected by four microscopes, each reading to single seconds. A detailed description of the whole instrument, and an account of some of its errors, is given in the preface to Vol. II, (pp. xxxvii, &c.)

Observations were made with the spirit-level at different times, with the instrument in reversed positions, all of which show the pivots to be of unequal thickness. (See vol. iii, p. xxvii, and vol. iv, pp. xxx, xxxi.) The result of the investigations concerning this error is the correction $\pm 0^s.114$ to be applied to the constant of inclination, as found from the level readings, in order to obtain the correct value of b, or inclination of axis to the plane of the horizon, the upper sign to be used for alidade west.

The error of figure of the pivots (vol. ii, pp. xxxix, &c.; vol. iv., pp. xxxi and xxxii,) being very small, it has not been found necessary to correct the observed transits on account of that error.

The system of transit and declination wires that were used during the latter part of the year 1848 remained in use up to the 31st of May of the year 1849. At this time it became evident that the transit wire A, as well as the fixed horizontal wire, had on several occasions become a little slack, especially when circumstances indicated a warm and humid atmosphere. In attempting to stretch out these delicate spider lines, the whole system of wires was broken out. A new set similar to the former was inserted on the 1st of June, but, these having been found likewise subject to occasional slackness, they were also removed, and on the 11th of June another set was inserted, consisting of one fixed horizontal —, seven micrometer —, and seven transit wires. These were used during the rest of the year 1849 and during the whole of the year 1850.

The observations for AR and Dec. were made as in former years, with the circle east, until the 28th of November, 1849, at which time the instrument was adjusted with the circle west. The transits and zenith distances were observed with the circle in this position during the rest of the year 1849, and during the whole of the year 1850.

From thirty-three complete transits of Polaris, of which fourteen were above the pole and nineteen below it, the following results for equatorial intervals for the year 1849 were obtained, and made use of in reducing the imperfect transits, viz:

1849.	Mean — A.	Mean — B.	Mean — C.	Mean — D.	Mean — E.	Mean — F.	Mean — G.
	s.	s.	s.	s.	s.	s.	s.
January 1 to May 31	+ 32.887	+ 21.795	+ 10.942	+ 0.152	— 10.940	— 21.947	— 32.889
May 31 to June 11	32.963	21.834	11.011	+ 0.021	11.035	21.819	32.974
June 11 to November 28	32.927	21.884	10.940	— 0.016	10.996	21.891	32.848
November 28 to December 31 . .	+ 32.829	+ 21.935	+ 10.992	— 0.019	— 10.960	— 21.893	— 32.884

During the year 1850, the electro-magnetic method of recording transits was introduced. The transits of circumpolar stars were observed by counting the beats of the armature of an electro-magnet placed near the observer, which armature moved synchronically with the pendulum of the sidereal clock or electro-chronograph situated in the west observing room. The transits of stars not very near the pole were recorded on a fillet of paper by the electro-magnetic recording atus in the west room, and the fractional parts of a second were afterwards measured to hundredths by the aid of a f equal parts. This very accurate method of observing afforded the means of determining the equatorial intervals

from other stars than circumpolar ones. A combination of the equatorial intervals from a great number of transits, both circumpolar and non-circumpolar, resulted as follows:

1850.	Mean — A.	Mean — B.	Mean — C.	Mean — D.	Mean — E.	Mean — F.	Mean — G.
	s.	s.	s.	s.	s.	s.	s.
January 1 to May 1	+ 32.833	+ 21.930	+ 11.026	— 0.001	— 10.964	— 21.898	— 32.928
May 1 to June 3	32.832	21.931	11.098	+ 0.018	11.145	21.871	32.916
June 3 to September 6	32.891	21.998	11.073	0.003	10.914	21.876	33.184
September 6 to November 13 . .	32.878	21.956	11.045	0.047	10.895	21.849	33.185
November 13 to December 31 . .	+ 32.899	+ 21.958	+ 11.110	+ 0.079	— 10.863	— 21.837	— 33.364

The imperfect transits were reduced to the mean of wires by the formula $\sin r = \sin e . \sec \delta$ for circumpolar stars, and $r = e . \sec \delta$ for other stars, where e represents the equatorial reduction of a wire to the mean, r the reduction for the star observed, and δ the star's declination.

The striding level was used for finding the inclination of axis, and the constants obtained from the level readings, having been corrected on account of the inequality of pivots, were substituted for b in the formula $c = \frac{1}{2} s + b$, in which s represents the distance of the middle transit wire from its image reflected from a quicksilver surface, as observed with the aid of the micrometer and collimating eye-piece, in the manner described in the preface to Vol. II, p. LV. The values of c thus obtained having been reduced to the mean of wires by applying to them the proper equatorial intervals, Mean — D taken from the above table with a contrary sign, they were then corrected for diurnal aberration, and a mean for each period in which this final value of c seemed to have remained constant was taken as follows:

Dates.	c.
	s.
1849.—January 1 to February 13	— 0.694
February 13 to February 19	.480
February 19 to May 31	.196
June 1 to June 11	.355
June 11 to October 8	.314
October 8 to November 21	— .258
November 28 to December 5	+ .012
December 5 to December 31	+ .217
1850.—January 1 to May 20	+ 0.191
June 3 to June 24	.170
August 7 to September 25	.118
September 28 to November 9	.120
November 13 to December 13	+ .088

Before these results were adopted, another set was computed from the observed transits, and the two sets were then compared. Their close agreement showed that no great error existed in the above table. The formulas used in this computation were the following:

$$n + c = \frac{1}{2} \frac{(\alpha - \tau) - (\alpha + 12^h - \tau)}{\tan \delta}$$

$$c = \frac{(\alpha' - \tau') - (\alpha'' - \tau'') - (n + c)\ (\tan \delta' - \tan \delta'')}{(\sec \delta' - \tan \delta'') - (\sec \delta'' - \tan \delta'')}$$

The first of these formulas gave $n + c$ from the transits of circumpolar stars at the upper and lower culmination; and by substituting this in the second formula such value of c was found as satisfied the conditions of the transits of the circumpolar star α, δ, the equatorial star α', δ', and the south star α'', δ'', in which formulas τ, τ', τ'' denote the observed

times of transit corrected for clock rate, α, α', α'', the apparent right ascensions of the three stars, and δ, δ', δ'', their declinations respectively.

The values of c given above having been subjected to this test were then adopted, and a computation of $n + c$ was made for every series of observed transits in which a circumpolar star had been included, by one or more of the following formulas:

$$n + c = \frac{(\alpha - \tau) - (\alpha' - \tau') + c\,(\sec \delta' - \tan \delta')}{\tan \delta - \tan \delta'}$$

$$n + c = -\frac{(\alpha + 12 - \tau) - (\alpha' - \tau') + c\,(\sec \delta' - \tan \delta')}{\tan \delta + \tan \delta'}$$

$$n + c = \frac{(\alpha - \tau) - (\alpha + 12 - \tau)}{2 \tan \delta}$$

$$n + c = \frac{(\alpha - \tau) - (\alpha' + 12^h - \tau') - c\left\{(\sec \delta - \tan \delta) - c\,(\sec \delta' - \tan \delta')\right\}}{\tan \delta + \tan \delta'}$$

The first of these formulas is adapted to the transit of a circumpolar star α, δ, and of an equatorial star α', δ', both transits being above the pole; the second formula is for the transit of a circumpolar star at lower transit, and of an equatorial star at upper culmination; the third to the upper and next succeeding lower transit of a circumpolar star; the fourth to the upper culmination of a circumpolar star and lower transit of another circumpolar star. In these formulas α, δ, and τ represent respectively the right ascension, declination, and observed time of transit of the circumpolar star, and α', δ', τ' the same for the equatorial star, or the circumpolar star at lower transit, corrected for clock rate.

From all the values of $n + c$ so found a mean was adopted for the intervals during which it appeared to remain nearly constant, as follows, viz:

Dates.				$n + c$
				s.
1849.—Jan.	1 to Feb.	3	. . . . .	+ 0.158
Feb.	3 to Feb.	4	. . . . .	— .061
Feb.	15 to Feb.	19	. . . . .	— .340
Feb.	19 to Mar.	22	. . . . .	+ .186
Mar.	22 to April	6	. . . . .	.269
April	6 to April	30	. . . . .	.317
April	30 to May	30	. . . . .	.186
May	3 to June	4	. . . . .	+ .219
June	4 to June	11	. . . . .	— .216
June	11 to July	11	. . . . .	.196
July	11 to July	29	. . . . .	.334
July	29 to July	30	. . . . .	— .289
July	30 to Aug.	5	. . . . .	+ .098
Aug.	6 to Sept.	1	. . . . .	— .289
Sept.	1 to Oct.	8	. . . . .	.298
Oct.	8 to Nov.	21	. . . . .	— .278
Nov.	21 to Nov.	28	. . . . .	+ .034
Nov.	28 to Dec.	7	. . . . .	.889
Dec.	7 to Dec.	17	. . . . .	.763
Dec.	17 to Dec.	31	. . . . .	+ .827
1850.—Jan.	4 to Feb.	23	. . . . .	+ .764
Feb.	25 to May	20	. . . . .	.580
June	3 to June	24	. . . . .	.256
Aug.	7 to Sept.	25	. . . . .	.142
Sept.	28 to Oct.	16	. . . . .	.120
Oct.	28 to Dec.	13	. . . . .	+ .100

The frequent reversal of the instrument and the changing of the transit wires before mentioned, together with

alterations in the adjustments for level, azimuth, and collimation, all of which are noticed in the marginal remarks to the observations, sufficiently account for the frequent changes of the values of $n + c$ here exhibited.

Having now the adopted values of n, c, and b, the quantity m was computed by the formula $m = -n \tan \varphi + b \sec \varphi$, where φ represents the latitude of the Observatory.

The correction $m + n \tan \delta + c \sec \delta$ having been applied to all the observed transits of the fixed stars, the values of Δt were obtained by comparing the corrected transits of such fundamental stars as had been observed, with their apparent right ascensions deduced from the table of mean right ascensions found in the Nautical Almanac for 1850, by means of the formulas and tables given in the appendix to the Washington observations for 1847. The apparent right ascensions of all the fixed stars observed were then found by the formula

$$a = t + \Delta t + m + n \tan \delta + c \sec \delta.$$

By this formula were also found the right ascensions of the planets whose apparent diameters were too small to be observed accurately; but where transits of both limbs of a planet were observed, the right ascensions were found by reducing these transits to the mean wire, and substituting the mean of the two transits for t in the above formula. Where only one limb of a planet was observed, the right ascension was obtained from the above formula, with an additional term for sidereal time of semi-diameter passing the meridian, interpolated from the British Nautical Almanac.

The apparent right ascensions of the sun were obtained by the formulas

$$a = t + \Delta t \pm \frac{R \sec \delta}{15\,(1 - \lambda)\, r} + f \frac{\sec \delta}{1 - \lambda} + m + n \tan \delta + c \sec \delta$$

$$\lambda = \frac{\cos \omega \sqrt{1 - e^2}}{r^2 \cos^2 \delta\, (T + 1)}$$

where δ represents the sun's declination, R the radius of the solar disk at the earth's mean distance taken $= 16' \, 0''.9$, r the radius vector of the earth, $1 - \lambda$ the interval of seconds of true time corresponding to one second of sidereal time, f the equatorial reduction of the wire observed to the mean wire, ω the obliquity of the ecliptic, T the tropical year expressed in days, and e the eccentricity of the earth's orbit.

In every case where a complete transit of one limb had been observed the term $f \frac{\sec \delta}{1 - \lambda}$ was neglected, and where complete transits of both limbs had been observed the term $\frac{R \sec \delta}{15\,(1 - \lambda)\, r}$ was likewise omitted, and the right ascension obtained from the remaining terms by substituting for t the mean of the times of transit of the first and second limbs.

The observed right ascensions of the moon were found by the formula

$$a = t + \Delta t \pm \frac{h}{15\,(1 - \lambda) \cos \delta} + f \frac{1 - \rho \sin \pi \cos (\varphi' - \delta)}{(1 - \lambda) \cos \delta}$$

$$+ \frac{1 - \rho \sin \pi \cos \varphi' \sec \delta'}{1 - \lambda} (m + n \tan \delta' + c \sec \delta')$$

where φ' represents the geocentric latitude of the Observatory, assumed $= + 38^\circ \, 42' \, 25''$; ρ the earth's radius for the same place; δ and δ' the moon's true and apparent declinations respectively; π the moon's equatorial horizontal parallax; h the geocentric radius of the moon's disk, expressed in seconds of arc; f the equatorial reduction of the wire observed to the mean wire expressed in time, and λ the change of the moon's right ascension in one second of sidereal time.

The term $\frac{h}{15\,(1 - \lambda) \cos \delta}$ was obtained by interpolating for the longitude of Washington the sidereal time of the moon's semi-diameter passing the meridian, as given in the British Nautical Almanac for the meridian of Greenwich.

The term $f \frac{1 - \rho \sin \pi \cos (\varphi' - \delta)}{(1 - \lambda) \cos \delta}$ was neglected in all cases where complete transits of the limb over the seven wires had been observed.

The micrometer wires of the diaphragm are designated by the numbers 1, 2, 3, 4, 5, 6, 7, of which 1 with the circle E is the most southern or uppermost in the field, the observer looking south. The distances between these wires have been determined by means of the collimating eye-piece and circle readings, each wire having been made to coincide with its own image. The mean of all the determinations gives:

	4—1	4—2	4—3	4—5	4—6	4—7
1849.—Jan. 1 to Feb. 1	— 20 27.16	— 14 38.50	— 5 52.45	+ 5 48.33	+ 14 29.13	+ 20 23.08
Feb. 1 to Mar. 1	20 26.00	14 36.10	5 52.04	5 49.45	14 30.45	20 23.46
Mar. 1 to June 11	20 24.84	14 33.71	5 51.63	5 50.56	14 31.76	20 23.73
June 18 to Dec. 31	— 20 24.54	— 14 33.72	— 5 46.44	+ 5 49.46	+ 14 37.04	+ 20 23.86
1850.—Jan. 18 to May 1	— 20 24.54	— 14 33.72	— 5 46.44	+ 5 49.46	+ 14 37.04	+ 20 23.86
May 1 to Oct. 1	20 24.94	14 34.35	5 47.12	5 50.25	14 36.65	20 23.34
Oct. 1 to Dec. 31	— 20 25.34	— 14 34.97	— 5 47.79	+ 5 51.04	+ 14 36.26	+ 20 22.81

The correction for runs, when required, has been determined in the same manner as for the mural circle.

The nadir points on the circle were determined by the collimating eye-piece, the middle micrometer wire having been used for this purpose, as well as for observing for declination generally, instead of the fixed horizontal wire. This method of observing consists in setting the circle so that a division mark may be exactly between the wires of one of the microscopes adjusted to zero; and then moving the micrometer-screw, if observing over the quicksilver, until the micrometer wire and its image coincide, or, if observing a star, until the wire bisects the star. In this mode of observing, the runs of microscopes are in all cases only a few seconds. The details of the observations for nadir point accompany the observations themselves, and occupy part of the pages containing the latter.

The refractions have been computed by Lieutenant Worden from the tables published in the appendix to Vol. I, (pages 59 to 71.) Another compuation of the same was made by Lieutenant Selden. These results were compared and revised by Professor Major.

The horizontal parallaxes of the sun, moon, and planets, were computed from their tabular distances from the earth as given in the Nautical Almanac.

The corrections for micrometer reading, zenith point, refraction, and, where necessary, for runs, parallax and semi-diameter having been duly applied to the mean of the four microscope readings; the true geocentric zenith distance was obtained, counted in accordance with the numbering of the graduations on the circle from the zenith towards the north when the circle was east of the piers, but towards the south when west, the southern distances in the former case being given as less than 360° or negative, and in the latter as less than 90° or positive. The addition of the latitude, assumed as 38° 53′ 39″.25, gave the required declination of the object.

The reduction of the stars' apparent places to the adopted mean equinox of 1850.0 were computed by Lieutenants Haggerty and Ammen, by the help of tables given in the Appendix C, Volume III. These computations were revised by Professor Major.

EXPLANATION TO THE PRINTED OBSERVATIONS.

On the left-hand page—

Column 1 contains the date, the day being always supposed to commence with the transit of the sun.

Column 2 contains the number for reference to the notes at the foot of the page.

Column 3 contains the designation of the object observed. Stars not belonging to the Nautical Almanac list are denoted, in the order of preference, by their letter and constellation, their constellation and number in the Catalogue of the British Association; the hour and number in Weisse's "Catalogus Stellarum," &c; the "Zone" of Bessel, in which the star has been given; the number in the reduced Catalogue of Lalande; or, finally, by the term Anonymous.

Columns 4–10 contain the observed times of transit over the vertical wires of the diaphragm.

Column 11 shows the mean of the wires observed; the reduction to the mean of the seven, in the case of broken transits being given in another place.

Columns 12–15 give the readings of the four microscopes, with the degrees and minutes shown by the first, or microscope A.

Column 16 contains the mean of the readings.

Columns 17–18 contain the readings of the micrometer.

Columns 19–21 give the readings of the barometer, and attached and exterior thermometers; the former in inches, the two latter in degrees of Fahrenheit's scale.

On the right-hand page—

Column 1 is a repetition of column 2, on the preceding page.

Columns 2–3 show the corrections to the mean of observed transits as given on the preceding page. The first is the sum of the corrections for broken transits, for instrumental errors, and for semi-diameter; the latter being separately in the small table in the margin of this page; the second is the correction on account of error of clock, taken from the small table in the margin of the left-hand page, where it is given for a certain epoch at the date of observation, with the hourly rate.

Columns 4–5 contain the corrections to be applied to the circle readings; the first, for the instrument, being the sum of the corrections for runs, micrometer reading, and reduction to the meridian; the second, for the object, being the sum of the corrections for refraction, semi-diameter and parallax.

Column 6 contains the readings thus corrected.

Column 7 shows the micrometer reading when, the micrometer wire coinciding with its image reflected from the quicksilver surface, the mean of microscope readings is 0′ 0″, deduced from the observations for nadir point.

Columns 8–9 contain the observed apparent AR. and Dec.; the first obtained by adding the numbers 2–3 of this page to the numbers in column 11 of the preceding; the second by subtracting the equatorial point 321° 6′ 20″.75 from the numbers in column 6 of this page, when the circle was east of the piers, or by subtracting these numbers from the equatorial point 38° 53′ 39″.25 when the circle was west of the piers.

Columns 10–11 contain the reductions of the stars to the mean equinox of 1850.0.

The last five columns contain the details of the determinations of the nadir point, giving, with the date and hour, the circle readings, the mean of each set, the mean of the micrometer readings for the wire at coincidence with its image, and the number of readings and coincidences.

The margin of the left-hand page contains, besides the quantities already explained, the adopted error of runs, and the observed coincidence of mic. wire 4 with the fixed horizontal wire, with such notes and corrections as have occurred during the reductions.

In the margin of the right-hand page are given the corrections in AR. for semi-diameter, the observed vertical semi-diameters, and the corrections that have been applied to the circle readings for defective illumination of the moon's limb. There are also given here the times corresponding to the micrometer observations of the moon, of Polaris, or of other objects observed at a distance from the middle transit wire.

The mean places of the stars for 1850.0, obtained by adding to the apparent places the reductions in columns 10–11, have been collected together on pages 404 to 415. The arithmetical mean of the determinations here given, excluding a few cases where the numbers are enclosed in brackets, were then taken and inserted in the General Catalogue at the end of the volume. The apparent places of the sun, moon, and planets are collected on pages 430–435, and compared with the tabular places as given by the Nautical Almanac. The quantity C—O is the excess of the computed over the observed place. The computed semi-diameters in AR. are the quantities used in the reductions, and already given in the margin of the printed observations.

PRIME VERTICAL TRANSIT INSTRUMENT.

Owing to the failure of health of the observer and the pressure of other duties but few observations were made with this instrument in 1849 and 1850.

The system of wires introduced in September, 1847, remained unchanged until October, 1850, when the diaphragm was taken out, and some new wires, with closer intervals, were introduced to facilitate observations by telegraph. In the new system there were 29 vertical wires, of which the 8 just introduced were arranged, 4 on each side of the centre, and with half the previously closest intervals. The observations being always symmetrical, no determination of the exact values of the intervals was made.

The value of one revolution of the micrometer wire was assumed the same as in 1848, viz: 26″.047.

The level-tube, No. 2558, continued in use until May 22, when the level-tube originally belonging to the instrument was substituted for it, and remained in use until September 18, when it was removed again, and the former tube restored.

The formulas for the reduction of observations are as follow:

Denoting by t and t' the observed times of transit in the E. over any given wire in the two positions of the instrument, (N. and S.,) and by $t_{,}'$ and $t_{,}'$ the similar transits in the W., and making

$$s = \tfrac{1}{4} \{ (t_{,}' - t) + (t_{,} - t') \}$$
$$u = \tfrac{1}{4} \{ (t_{,}' - t) - (t_{,} - t') \}$$

and denoting, moreover, by δ and φ the declination and the sum of the latitude and level-correction; then

$$\tan \delta_{\circ} = \tan \varphi \cos s . \cos u.$$

The correction b, on account of error of level, for a star in the zenith, is given immediately by the level readings; for any other star it is given by the formula

$$\Delta\delta_{\circ} = b \sin 2\,\delta \operatorname{cosec} 2\,\varphi.$$

The computation of $\delta_{\circ}$ is performed independently for each wire, and the mean of the results corrected for level-error given in the pages of the printed observations.

For observations of stars very near the zenith, with the micrometer, we have

$$\delta = \varphi + b - \mathrm{C} + m - \text{Red. to vertical} + \text{coll}^{\text{n}}. \text{ (Tel. S.)}$$
$$\delta = \varphi + b + \mathrm{C} - m - \text{Red. to vertical} - \text{coll}^{\text{n}}. \text{ (Tel. N.)}$$

where, besides the symbols already used, C denotes the micrometer reading at coincidence with the middle wire, and m the micrometer reading for the star.

The reduction to the vertical is given in parts of a revolution of the micrometer screw by the formula

$$m.\ k.\ \sin^2 \tfrac{1}{2}\, t$$

where
$$m = 1^{\text{r}} = 26''.047$$
$$k = [5.6154551].\ \cos \delta \sin \varphi.$$
$$t = \text{hour angle.}$$

The time of the star's meridian passage is easily found by taking the half sum of corresponding transits in the prime vertical. In a complete observation there are seven of these determinations with telescope N, and seven with telescope S. The mean is entered in the pages of printed observations. If the level indicate a change of position of the axis in the interval between E. and W. transits, a correction should be applied to the mean, computed by the formula

$$d\,\mathrm{T} = \frac{\mathrm{I_E} - \mathrm{I_W}}{30 \sqrt{(\sin (\varphi + \delta) . \sin (\varphi - \delta)}} . \sin \delta \operatorname{cosec} \varphi.$$

The clock-correction being now also applied to the mean of wires, the error of the axis in azimuth may be obtained by comparing this corrected time with the tabular AR. of the star.

In 1849 and 1850, however, this has not been practicable, for the want of the necessary observations, and the computations have therefore been confined to the determination of declinations only.

The reductions to the mean equinox of 1850.0 were computed by help of the "Independent Constants" given in the Appendix to Vol. III.

All the computations were made in duplicate by Lieutenant John L. Worden and Professor Hubbard.

EXPLANATION OF THE PRINTED OBSERVATIONS.

On the left-hand page:

Column 1 contains the date, the day always commencing with the transit of the sun, and the date being that of the meridian passage of the star.

Column 2 contains the reference number for the notes.

Column 3 contains the designation of the objects observed, the names being given in the order of preference from the Nautical Almanac, the Catalogue of the British Association, or the reduced Catalogue of Lalande, the latter being chosen as furnishing a more definite reference than Bessel's Zones. When these authorities failed to furnish a name, the star is marked Anonymous.

Column 4 indicates the vertical (E. or W.) in which the observation was made, the order being always E. W.

Columns 5–13 show the position of the telescope with reference to the pier, the instrument being always reversed between the transits given in columns 12 and 14.

Columns 6 . . . 20 contain the recorded times of transit over the vertical wires. When, as often happens with this instrument, any wires have been omitted or lost in either of the four sets of transits, the three corresponding observations have been suppressed as of no value.

On the right-hand page:

Column 1 is a repetition of column 2 of the preceding page.

Columns 2 and 3 contain the means of four readings of the level in the two positions of the telescope, (N. and S.)

Column 4 shows the excess of the numbers in column 3 over those in column 2.

Column 5 contains the mean of the two numbers in column 4, multiplied by the value of one division of the level, and, where necessary, by the factor $\sin 2\,\delta \operatorname{cosec} 2\,\varphi$.

Column 6 contains the mean of observed transits, the first reading of wire A. in the E. being combined with the last of the same wire in the W., and similarly with the other wires. In a complete observation, therefore, the quantities in this column are the means of fourteen observations.

Column 7 gives the apparent Dec. computed from the intervals of transit in the manner described above.

Column 8 contains the reductions to the mean equinox of 1850.0.

Column 9 gives the magnitude of the star.

Column 10 gives the initial of the observer's name, H. denoting Professor Hubbard.

Column 11 is a repetition of column 3 of the preceding page.

The notes entered in the observing book are given in the margins.

The mean Dec. of all the stars observed have been collected together in pages 416 and 417, and the mean results of each star embodied in the General Catalogue at the end of the volume.

THE EQUATORIAL.

The Equatorial, by Merz and Mahler, of which a representation has been given in the first volume of these observations, is of the same dimension and construction as the instruments at Dorpat and Berlin. The object-glass has a clear aperture of 9.65 inches, and a focal length of 14.65 feet.

The diaphragm of the micometer consists of two pieces—one moved by a plain screw carrying three transit wires, and one declination wire in the centre of the aperture. The other piece, moved by the micrometer-screw, carries three declination wires, at intervals from each other of nearly thirty revolutions of the screw.

The transit wires are denoted by the letters A, B, C. In the record of transits, A always indicates the wire first passed by the star. The equatorial intervals (A being the wire nearest the vernier of the position-circle marked II,) are as follows:

B—A	C—B
s.	*s.*
12.30	12.33

The declination wires are indicated by the numbers 1, 2, 3; the wire 1 being nearest to the head of the micrometer-screw. The intervals of these wires were as follows:

For 1849.

	r.
2—1	30.151
3—2	29.913
3—1	60.064

For 1850.

	s.
2—1	30.167
3—2	29.912
3—1	60.080

The value of a revolution of the micrometer-screw has been determined by transits of stars within 20 degrees of the Pole and from distances between well known stars of the Pleiades; also by clamping the instrument in the equator and meridian, and observing with the chronograph, and for several successive hours, all stars passing near the central wire. A determination not differing much from that observed by these several methods has also been made by measuring in revolutions the length of the columns of the peristyle of the dome of the Capitol; the interval used being 8.245 metres, and the distance 3716.79 metres; the one value having been taken from the design of the architect, and the other from the triangulations of the survey of the coast. The observations made in each year for this purpose are given among the current work of the year; but the final reductions having been made at a later period, the value used has been a result from all the determinations discussed up to the time of reduction. For 1849 the value used was 15″.372; for 1850, 15″.370.

The objects observed in 1849 were: The comet 1849.III, (Schweitzer,) the planet Mars, the asteroids Metis, Astræa, Ceres, and Vesta. In 1850 there were observed the planets Mars and Venus, the asteroids Metis, Astræa, Hebe, Hygea, Parthenope, Flora, Victoria, and Egeria; also the comets 1850.I, 1850.II; also a star designated by the letter k, observed as a star of comparison with Hygea, now missing, and supposed to have been a planet. In each year there were also observed occultations of stars by the moon. The observations, excepting only those of the 5th of January, 1849, have been made by Mr. Ferguson, who also computed the work and prepared it for publication.

In these observations, column 1 contains the date; column 2, the name of the object; columns 3, 4, and 5, the seconds of the transit; column 6, the mean of these transits, with the hour and minute prefixed; column 7, the micrometer reading; Columns 8 and 9, the observed differences in α and δ, the first expressed in minutes and seconds, the second in revolutions and decimals; column 10, or the remainder of the page, contains—

The correction of the chronometer;

The apparent place of the comparison-star at the time of observation;

The mean of the true times (either sidereal or mean) of observation;

The mean of the observed difference of α and δ between the object compared and the star of comparison; and

The correction for differential refraction ($\Delta\ \rho$) and the correction for parallax (p.)

The results of these observations contain the mean time at Washington of the observation, and the observed place of the body; also a table of the mean places for 1850.0 of the stars of comparison, with the authorities from which they have been derived.

OBSERVATIONS

WITH THE

WEST TRANSIT INSTRUMENT,

1849.

NATIONAL OBSERVATORY.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1849.			s.	s.	s.	s.	s.	s	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Jan. 2	1†	α Arietis	49.2	3.0	16.4	29.5	43.2	57.0	10.5	58 29.83	— 0.30		+ 11.16	1 58 40.69	+ 2.92	B.°
	2†	γ Ceti	41.2	53.4	6.2	18.0	31.0	43.5	55.8	35 18.44	0.60		.17	2 35 29.01	2.69	
	3	Dec. + 33° 37′	40.0	55.0	9.9	24.9	39.8	55.0	9.5	30 24.87	0.11		.18	3 30 35.94	2.74	
	4	Persei, (1132)	54.3	9.0	24.1	39.0	54.0	9.2	24.2	32 39.11	0.11		.18	3 32 50.18	2.74	
	5	Dec. + 35° 33′	0.2	15.4	31.2	46.3	2.0	17.2	32.3	46 46.37	0.07		.19	3 46 57.49	2.74	
	6	α Tauri	27.0	39.5	52.0	5.5	19.0	32.0	45.0	27 5.71	— 0.41		.19	4 27 16.49	2.46	
	7	Dec. + 44° 30′	38.0	55.3	13.0	30.4	48.0	5.3	23.0	55 30.43	+ 0.15		.20	4 55 41.78	2.81	
	8	β Orionis	30.0	42.3	45.0	7.5	20.3	32.5	45.2	7 7.54	— 0.75		.20	5 7 17.99	1.87	
	9	β Tauri	52.5	7.0	21.0	35.2	49.5	3.5	18.0	16 35.24	0.21		11.20	5 16 46.23	2.58	
4	10	Arietis, (845)	59.0	12.0	24.5	37.1	50.0	2.5	15.2	36 37.18	0.51		11.00	2 36 47.67	2.76	
	11	α Ceti	36.0	48.6	1.1	13.5	26.0	38.8	51.2	54 13.60	0.59		.00	2 54 24.01	2.64	
	12	Moon, 1st L.	42.1	55.2	8.2	21.5	35.0	47.8	1.0	17 21.54	0.47	+ 70.19	.00	3 18 42.26	- - -	
	13	η Tauri	40.2	54.0	7.5	21.0	35.0	47.8	2.0	38 21.07	0.29		.00	3 38 31.78	2.67	
	14	λ Tauri	31.4	44.0	56.5	9.5	22.5	35.0	48.0	52 9.56	0.47		.00	3 52 20.09	2.50	
	15	α Tauri	27.0	40.0	53.1	6.0	19.0	32.2	45.2	27 6.07	— 0.41		.00	4 27 16.66	2.47	
	16	Dec. + 43° 50′	1.0	18.5	36.0	53.0	10.5	27.5	45.0	44 53.07	+ 0.14		.00	4 45 4.21	2.80	
	17	Dec + 44° 30′	38.0	55.5	13.0	30.7	48.0	5.9	23.2	55 30.61	+ 0.15		.00	4 55 41.76	2.81	
	18	β Orionis	30.0	42.2	55.0	8.0	20.5	33.0	45.5	7 7.74	— 0.75		.00	5 7 17.99	1.88	
	19	β Tauri	52.5	7.0	21.0	35.4	49.7	4.0	18.0	16 35.37	0.21		.00	5 16 46.16	2.58	
	20	δ Orionis	30.8	43.0	55.5	8.2	21.0	33.3	46.0	24 8.26	0.65		.00	5 24 18.61	2.03	
	21	ε Orionis	46.3	59.0	11.2	24.0	36.3	49.0	1.5	28 23.90	0.66		11.00	5 28 34.24	1.99	
5	22	γ Ceti	41.8	54.4	6.9	19.4	31.9	44.5	56.8	35 19.39	0.60		10.53	2 35 29.32	2.72	K.†
	23	Dec. + 33° 37′	40.2	55.3	10.4	24.9	40.3	55.4	10.4	30 25.27	0.11		.52	3 30 35.68	2.76	
	24	Persei, (1132)	54.9	9.7	24.6	39.8	54.6	9.8	24.7	32 39.73	— 0.11		.52	3 32 50.14	2.76	
	25	Dec. + 43° 56′	0.4	17.8	34.9	--	--	--	--	43 17.70	+ 34.85		.51	4 44 3.06	2.80	
	26	Dec. + 43° 51′	--	--	--	26.4	43.8	--	--	44 35.10	— 8.50		.51	4 44 37.11	2.80	
	27	Dec. + 43° 51′	--	--	--	--	10.9	--	--	45 10.90	— 17.21		.51	4 45 4.20	2.80	
	28	Dec. + 44° 24′	29.0	46.4	3.8	--	--	--	--	50 46.40	+ 35.13		.51	4 51 32.04	2.81	
	29	β Orionis	29.3	42.8	55.4	8.2	20.9	33.5	46.2	7 8.04	— 0.75		10.51	5 7 17.80	1.88	
10	30†	α Ceti	39.4	52.0	4.5	17.0	29.3	42.0	55.0	54 17.03	— 0.59		7.47	2 54 23.91	2.68	B.
	31	α Persei	30.0	49.3	8.5	28.0	47.0	6.4	25.3	13 27.79	+ 0.30		.47	3 13 35.56	2.93	
	32	η Tauri	43.7	57.2	11.0	25.0	38.5	52.0	5.5	38 24.70	— 0.29		.46	3 38 31.87	2.69	
	33	Dec. + 36° 3′	52.0	7.0	22.3	38.0	53.5	9.1	24.4	47 38.04	0.06		.46	3 47 45.44	2.78	
	34†	α Tauri	30.5	43.5	56.3	9.5	22.5	35.5	48.3	27 9.43	0.41		.45	4 27 16.47	2.47	
	35	β Tauri	56.3	10.5	25.0	39.0	53.0	7.5	21.5	16 38.97	0.21		.44	5 16 46.20	2.58	
	36	δ Orionis	34.2	47.0	59.3	12.0	24.3	37.0	49.4	24 11.89	0.65		.44	5 24 18.68	2.03	
	37	ε Orionis	50.0	2.5	15.0	27.5	40.0	52.3	5.0	28 27.47	— 0.66		.44	5 28 34.25	1.99	
11	38†	α Persei	30.3	49.5	8.8	28.0	46.9	6.0	25.3	13 27.83	+ 0.30		7.00	3 13 35.13	2.96	K.
	39*	γ^1 Eridani	14.9	27.8	40.8	53.5	6.8	19.3	32.4	50 53.64	— 0.83		6.99	3 50 59.80	2.14	
	40	α Tauri	30.9	43.8	56.8	9.9	22.8	36.3	48.8	27 9.90	— 0.41		.99	4 27 16.48	2.48	
	41	α Aurigæ	33.2	50.9	9.0	26.8	44.7	2.8	20.8	5 26.89	+ 0.19		.99	5 5 34.07	2.84	
	42	α Leporis	--	33.2	46.3	59.5	12.0	25.7	--	25 59.34	— 0.89		.99	5 26 5.44	1.56	
	43	ε Orionis	50.2	2.8	15.3	27.9	40.4	52.8	5.3	28 27.81	0.66		.99	5 28 34.14	1.98	
	44	α Columbæ	--	--	--	6.3	21.2	36.8	51.8	34 29.03	23.81		.99	5 34 12.21	0.86	
	45	α Orionis	16.8	29.4	41.8	54.8	7.4	19.8	32.3	46 54.61	0.54		6.99	5 47 1.06	2.13	
12	46†	Sun, 1st L.	9.1	22.8	36.0	49.6	3.0	16.8	30.1	35 49.63	0.94	+ 70.25	7.48	19 37 6.42	- - -	B.
	47	Sun, 2d L.	29.3	43.3	56.3	10.1	23.4	37.0	50.4	38 9.97	0.94	— 70.25	.48	19 37 6.26	- - -	
	48	γ Ceti	45.0	57.4	10.0	22.3	35.0	47.4	0.0	35 22.44	0.60		.38	2 35 29.22	2.80	
	49	α Ceti	39.3	52.0	4.5	17.2	29.4	42.0	54.5	54 16.99	— 0.59		.37	2 54 23.77	2.71	
	50	α Persei	30.0	49.0	8.5	27.5	47.0	6.0	25.0	13 27.57	+ 0.30		.37	3 13 35.24	2.98	
	51	η Tauri	44.0	57.4	11.0	25.0	38.0	52.0	5.5	38 24.70	— 0.29		.36	3 38 31.77	2.73	
	52	γ^1 Eridani	14.2	27.8	41.0	53.2	6.0	19.0	32.0	50 53.31	— 0.83		+ 7.36	3 50 59.84	+ 2.17	

Date.	CLOCK. At 4h.	Hourly rate.	VALUE OF m.	n.	c.
	s.	s.	s.	s.	s.
Jan. 2	s 11.19	l 0.012	— .690	+ .782	+ .052
4	11.00	l .002			
5	10.52	g .010			
10	7.46	g .012			
11	6.99	g .003			
12	s 7.36	g .015			

° B. Prof. Beecher.
† K. Prof Keith.
1. Unsteady.
2, 5 to 9. Extremely unsteady.
30 to 33. Very unsteady.
34 to 37. Extremely unsteady.
38. Observations of little weight through the night.
46. Very unsteady through the night; misty.

ATE.	No. for ref	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
849.			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
. 12	1	β Orionis - - - -	33.3	46.0	58.5	11.0	24.0	37.0	49.0	7 11.26	— 0.75	- - -	+ 7.34	5 7 17.85	+ 1.91	B.
	2	β Tauri - - - - -	56.5	10.5	25.0	39.0	53.2	7.7	21.8	16 39.10	0.21	- - -	.34	5 16 46.23	2.59	
	3	δ Orionis - - - -	35.0	47.4	59.6	12.0	24.6	37.0	49.5	24 12.16	0.64	- - -	.34	5 24 18.86	2.03	
	4	ε Orionis - - - -	50.0	2.7	15.0	27.7	40.0	52.7	5.2	28 27.61	0.60	- - -	7.33	5 28 34.34	2.00	
17	5	γ^1 Eridani - - - -	20.3	33.2	46.1	59.0	11.9	24.9	37.7	50 59.01	0.73	- - -	1.34	3 50 59.62	2.23	K.
	6	α Tauri - - - - -	36.4	49.3	2.4	15.5	28.4	41.3	54.4	27 15.53	— 0.30	- - -	.34	4 27 16.57	2.55	
18	7†	α Persei - - - - -	36.0	55.0	14.5	34.0	53.0	12.5	31.0	13 33.71	+ 0.41	- - -	.01	3 13 35.13	3.12	B.
	8	η Tauri - - - - -	50.0	3.5	17.0	31.0	44.4	58.2	11.8	38 30.84	— 0.16	- - -	.02	3 38 31.70	2.81	
	9	γ^1 Eridani - - - -	21.0	33.5	46.5	59.3	12.3	25.2	38.0	50 59.40	0.68	- - -	.03	3 50 59.75	2.25	
	10	α Tauri - - - - -	37.0	49.5	2.5	15.7	29.0	41.5	54.5	27 15.67	— 0.27	- - -	.05	4 27 16.45	2.56	
	11	α Aurigæ - - - -	39.0	56.5	15.0	32.5	51.0	8.5	27.0	5 32.79	+ 0.30	- - -	.07	5 5 34.16	2.93	
	12	β Tauri - - - - -	2.4	16.5	31.0	45.0	59.5	13.5	27.7	16 45.09	— 0.08	- - -	.08	5 16 46.09	2.62	
	13	δ Orionis - - - -	40.7	53.0	5.4	18.0	31.0	43.0	56.0	24 18.16	0.50	- - -	.08	5 24 18.74	2.06	
	14	ε Orionis - - - -	56.0	8.3	21.0	33.7	46.2	58.4	11.2	28 33.54	0.51	- - -	.09	5 28 34.12	2.03	
	15	α Orionis - - - -	22.3	34.8	47.2	0.0	13.0	25.5	38.2	47 0.14	0.40	- - -	.10	5 47 0.84	2.16	
	16†	δ Ursæ Minoris, S. P.	25.0	55.0	24.5	55.0	27.5	59.0	28.0	20 56.29	13.83	- - -	+ 1.12	6 20 43.58	0.07	
23	17	γ^1 Eridani - - - -	23.8	36.8	49.8	2.6	15.6	28.5	41.0	51 2.59	0.68	- - -	— 2.23	3 50 59.68	2.31	K.
	18	α Tauri - - - - -	40.1	52.8	5.7	18.7	32.2	44.9	58.0	27 18.91	— 0.27	- - -	.22	4 27 16.42	2.58	
	19	α Aurigæ - - - -	41.8	59.8	17.7	35.8	53.8	11.8	29.8	5 35.75	+ 0.30	- - -	.21	5 5 33.88	2.99	
	20	β Tauri - - - - -	5.7	19.9	34.1	48.4	2.8	16.9	31.0	16 48.40	— 0.08	- - -	.20	5 16 46.12	2.66	
	21	δ Orionis - - - -	43.9	56.3	8.8	21.4	33.9	46.3	58.7	24 21.33	0.50	- - -	.20	5 24 18.63	2.10	
	22	α Columbæ - - - -	29.9	45.0	0.2	15.3	30.6	45.7	0.8	34 15.36	1.01	- - -	.20	5 34 12.15	0.99	
24	23†	α Tauri - - - - -	40.2	53.2	6.4	19.5	32.5	45.5	58.7	27 19.43	— 0.30	- - -	.69	4 27 16.44	2.62	B.
	24	α Aurigæ - - - -	42.5	0.5	18.5	36.0	54.3	12.3	30.2	5 36.33	+ 0.31	- - -	.72	5 5 33.92	3.00	
	25	β Tauri - - - - -	6.2	20.5	34.5	49.0	3.1	17.2	31.8	16 48.90	— 0.09	- - -	2.73	5 16 46.08	2.67	
26	26	α Aurigæ - - - -	45.2	3.0	21.0	39.0	57.0	15.0	33.0	5 39.03	+ 0.31	- - -	5.39	5 5 33.95	3.03	K.
	27	β Tauri - - - - -	8.8	23.0	37.3	51.5	6.0	20.0	34.3	16 51.56	— 0.09	- - -	.40	5 16 46.07	2.69	
	28	δ Orionis - - - -	47.0	59.4	12.0	24.7	37.2	49.5	2.1	24 24.56	0.55	- - -	.41	5 24 18.60	2.12	
	29	ε Orionis - - - -	2.8	15.0	27.5	40.1	52.5	5.0	17.5	28 40.06	0.56	- - -	.42	5 28 34.08	2.09	
	30	α Orionis - - - -	29.1	41.4	54.0	6.8	19.3	32.0	44.5	47 6.73	0.44	- - -	.44	5 47 0.85	+ 2.21	
	31	δ Ursæ Minoris, S. P.	32.0	4.0	35.0	5.0	36.5	5.5	36.0	21 4.86	14.80	- - -	.47	6 20 44.59	— 0.88	
	32	α Canis Majoris - -	58.0	11.0	24.2	37.2	50.0	3.2	16.3	38 37.13	0.78	- - -	.49	6 38 30.86	+ 1.38	
	33	ε Canis Majoris - -	6.6	21.0	35.0	49.5	3.7	18.0	32.3	52 49.44	0.98	- - -	.51	6 52 42.95	0.90	
	34	δ Geminorum - - -	32.2	46.0	59.4	13.0	26.7	40.0	53.7	11 13.00	0.21	- - -	.53	7 11 7.26	2.29	
	35	α^2 Geminorum - - -	20.0	35.3	50.0	4.7	19.4	34.0	48.7	25 4.59	0.02	- - -	.55	7 24 59.02	2.45	
	36	α Canis Minoris - -	53.2	6.0	18.5	31.0	43.6	56.0	8.7	31 31.00	0.46	- - -	.55	7 31 24.99	1.86	
	37	β Geminorum - - -	28.3	42.7	56.9	11.0	25.4	39.5	53.5	36 11.04	0.10	- - -	.56	7 36 5.38	2.33	
	38	15 Argus - - - - -	33.9	47.5	1.0	15.0	28.4	42.0	55.7	1 14.79	0.90	- - -	.59	8 1 8.30	1.00	
	39	ε Hydræ - - - -	16.0	29.0	41.5	54.0	6.4	19.0	31.6	38 53.93	— 0.44	- - -	.63	8 38 47.86	1.93	
	40	ι Ursæ Majoris - -	0.4	19.5	38.6	57.3	16.0	35.2	54.2	48 57.31	+ 0.40	- - -	.64	8 48 52.07	2.66	
	41	α Hydræ - - - -	39.5	52.2	5.0	17.5	30.0	43.0	55.5	20 17.53	— 0.66	- - -	5.68	9 20 11.19	1.61	
27	42	η Tauri - - - - -	57.1	11.0	24.6	38.2	51.8	5.3	19.1	38 38.16	0.18	- - -	6.36	3 38 31.62	2.93	
	43	γ^1 Eridani - - - -	28.3	41.2	53.8	7.0	19.7	32.4	45.3	51 6.81	— 0.74	- - -	.36	3 50 59.71	2.37	
	44	Dec + 26° 30′ -	7.3	21.2	--	--	--	--	--	57 14.25	+ 34.81	- - -	.33	4 57 42.73	2.70	
	45	Dec. + 26° 30′ -	--	--	29.8	--	--	--	--	58 29.80	+ 13.88	- - -	.33	4 58 37.35	2.70	
	46	Dec. + 26° 30′ -	--	--	--	--	--	17.0	--	2 17.00	— 28.09	- - -	.33	5 1 42.58	2.69	
	47	Dec. + 26° 30′ -	26.2	40.3	54.4	--	--	--	--	1 40.30	+ 27.83	- - -	.33	5 2 1.80	2.69	
	48	Dec + 26° 30′ -	--	--	21.3	--	--	--	--	10 21.30	13.88	- - -	.33	5 10 28.85	2.67	
	49	Dec. + 26° 30′ -	--	29.2	--	--	--	--	--	14 29.20	+ 27 81	- - -	.33	5 14 50.68	2.65	
	50	Dec. + 26° 30′ -	--	--	--	20.1	--	--	--	17 20.10	— 0.13	- - -	.32	5 17 13.65	2.65	
	51	Dec. + 26° 30′ -	--	--	--	--	--	19.5	--	19 19.50	— 28.09	- - -	.32	5 18 45.09	2.64	
	52	Dec. + 26° 30′ -	--	58.5	--	26.4	--	--	--	20 12.45	+ 13.84	- - -	— 6.32	5 20 19.97	+ 2.64	

7 to 14. Extremely unsteady.
16. Extremely steady; observation excellent.
23. New wires.

Date.		CLOCK. At 5h.	Hourly rate.	VALUE OF m.	n.	c.
		s.	s.	s.	s.	s.
Jan. 12	s	7.34	g 0.015	— .690	+ .782	+ .052
17	s	1.33	g .011	.562	.803	.031
18	s	1.07	l .035	.527	.760	.031
23	f	2.21	l .019			
24	f	2.71	g .039	— .572	+ .815	+ .031
26	f	5.38	g .068			
27	f	6.33	l .025			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1849.			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Jan. 27	1	Dec. + 26° 30′	--	--	--	46.9	--	--	--	21 46.90	— 0.13	- - -	— 6.32	5 21 40.45	+ 2.63	K.
	2	Dec. + 26° 30′	--	--	--	39.9	53.5	--	--	22 46.70	7.11	- - -	.32	5 22 33.27	2.63	
	3	ε Orionis	3.1	15.8	28.6	41.3	53.2	6.2	18.4	23 40.94	— 0.56	- - -	.32	5 28 34.06	+ 2.10	
	4†	δ Ursæ Minoris, S. P.	34.5	1.0	37.5	--	--	--	--	14 4.33	+ 6 46.78	- - -	.30	6 20 44.81	— 1.08	
	5	δ Geminorum	33.2	46.8	59.8	13.7	27.2	--	--	11 0.14	+ 13.32	- - -	6.27	7 11 7.19	+ 2.30	
Feb. 3	6†	η Tauri	3.6	17.0	30.4	44.2	57.8	11.6	25.2	38 44.26	— 0.18	- - -	12.61	3 38 31.47	3.03	B.
	7	γ¹ Eridani	24.2	46.8	59.9	12.9	25.9	38.2	51.3	51 12.74	0.74	- - -	.60	3 50 59.40	2.46	
	8	α Tauri	50.0	3.0	16.2	29.4	42.2	55.2	8.3	27 29.19	0.30	- - -	.57	4 27 16.32	2.75	
	9	ι Tauri	37.9	51.1	4.3	17.5	31.1	44.5	58.0	54 17.77	0.22	- - -	.54	4 54 5.01	2.72	
	10	β Orionis	53.0	6.0	18.5	31.0	43.5	56.2	8.8	7 31.00	0.66	- - -	.54	5 7 17.80	2.10	
	11	β Tauri	15.5	30.0	44.0	58.0	13.0	27.0	41.0	16 58.36	0.10	- - -	.53	5 16 45.73	2.76	
	12	δ Orionis	54.0	6.6	19.1	31.7	44.2	56.5	9.0	24 31.59	0.55	- - -	.52	5 24 18.52	2.19	
	13	ζ Tauri	11.1	24.3	37.8	51.2	4.5	18.0	31.4	28 51.19	0.23	- - -	.52	5 28 38.44	2.59	
	14	α Orionis	36.0	48.5	1.0	14.0	26.5	39.0	51.5	47 13.79	0.44	- - -	.50	5 47 0.85	+ 2.25	
	15	Moon, 1st L.	15.2	28.8	42.2	55.7	9.5	23.0	36.8	0 55.89	0.28	+ 71.60	.49	6 1 54.72	- - -	
	16	δ Ursæ Minoris, S P.	42.0	11.0	43.0	13.0	44.0	15.0	45.0	21 13.29	14.80	- - -	.48	6 20 46.01	— 2.47	
	17	α Canis Majoris	5.2	18.0	31.0	44.0	57.2	10.0	23.2	38 44.09	— 0.78	- - -	12.46	6 38 30.85	+ 1.43	
6	18†	Dec. + 26° 30′	45.5	--	13.3	--	--	--	--	1 59.40	+ 27.81	- - -	25.15	5 2 2.06	2.80	K.
	19	Dec. + 26° 30′	--	--	--	15.9	--	--	--	14 15.90	— 0.16	- - -	.16	5 13 50.58	2.76	
	20	Dec. + 26° 30′	--	--	--	38.8	--	--	--	15 38.80	— 0.16	- - -	.16	5 15 13.48	2.76	
	21	Dec. + 26° 30′	--	42.8	56.7	10.8	--	--	--	16 56.77	+ 13.82	- - -	.16	5 16 45.43	2.75	
	22	δ Orionis	6.8	19.4	31.8	44.2	56.8	9.2	22.0	24 44.31	— 0.64	- - -	.17	5 24 18.50	2.21	
	23	α Columbæ	52.8	8.1	23.2	38.3	53.6	--	23.8	34 33.30	+ 3.79	- - -	.18	5 34 11.91	1.21	
	24	ε Canis Majoris	26.4	40.8	55.0	9.2	23.5	37.8	52.0	53 9.24	— 1.14	- - -	.25	6 52 42.85	0.95	
	25	δ Geminorum	52.5	5.8	19.2	32.9	46.4	59.9	13.4	11 32.86	0.25	- - -	.27	7 11 7.34	2.31	
	26	α² Geminorum	39.7	54.6	9.4	24.0	38.9	53.7	8.6	25 24.13	0.04	- - -	.28	7 24 58.81	2.45	
	27	β Geminorum	48.2	2.7	16.6	30.9	44.9	59.2	13.8	36 30.90	0.13	- - -	.29	7 36 5.48	2.36	
	28	θ Cancri	46.3	59.5	12.7	26.1	39.0	52.4	5.4	23 25.91	0.32	- - -	.33	8 23 0.26	2.09	
	29	δ Cancri	--	--	19.5	32.8	45.9	59.1	12.5	36 45.96	13.51	- - -	.34	8 36 7.11	2.08	
	30	Moon, 1st L.	50.4	3.5	16.7	29.9	43.2	56.5	9.7	6 29.99	0.42	+ 68.66	.37	9 7 12.86	- - -	
	31	Moon, 2d L.	7.8	21.2	34.4	47.5	0.6	13.7	27.2	8 47.49	0.42	— 68.66	.37	9 7 13.04	- - -	
	32	ξ Leonis	--	49.7	2.4	15.2	28.0	40.7	53.5	24 21.58	6.82	- - -	.38	9 23 49.38	1.91	
7	33	α Tauri	2.8	16.0	28.6	41.5	54.1	7.7	20.4	27 41.59	— 0.36	- - -	.06	4 27 16.17	2.78	B.
	34	Dec. + 43° 50′	53.0	10.0	27.3	45.0	2.2	--	--	44 27.50	+ 17.61	- - -	.07	4 44 20.04	3.22	
	35	Dec. + 43° 50′	--	--	--	--	19.0	36.2	53.2	45 36.13	— 34.42	- - -	.07	4 44 36.64	3.21	
	36	Dec. + 45° 7′	53.0	10.5	28.0	46.0	3.5	20.7	38.5	54 45.74	+ 0.31	- - -	.07	4 54 20.98	3.21	
	37†	β Orionis	5.5	18.0	31.0	43.5	56.0	8.7	21.3	7 43.43	— 0.77	- - -	.07	5 7 17.59	2.17	
	38	β Tauri	28.4	42.8	57.0	11.2	25.3	39.5	54.0	17 11.17	0.12	- - -	.07	5 16 45.98	2.80	
	39	δ Orionis	6.5	19.2	32.0	44.2	56.5	9.1	22.0	24 44.21	0.64	- - -	.08	5 24 18.49	2.23	
	40	ε Orionis	22.1	34.6	47.2	0.0	12.2	25.0	37.6	28 59.81	0.65	- - -	.08	5 28 34.08	+ 2.19	
	41	δ Ursæ Minoris, S. P.	57.5	27.0	59.0	29.0	59.0	28.0	59.0	21 28.36	16.76	- - -	.09	6 20 46.51	— 3.27	
	42	α Canis Majoris	18.0	30.6	43.8	57.0	10.0	23.0	35.9	38 56.90	0.91	- - -	.09	6 38 30.90	+ 1.47	
	43	δ Geminorum	52.0	5.5	19.0	32.6	46.3	59.7	13.2	11 32.61	0.25	- - -	.10	7 11 7.26	2.35	
	44	α² Geminorum	39.4	54.2	9.2	24.0	39.0	53.6	8.2	25 23.94	0.04	- - -	.11	7 24 58.79	2.49	
	45	α Canis Minoris	13.0	25.2	38.0	50.5	3.1	15.8	28.2	31 50.54	— 0.54	- - -	.11	7 31 24.89	1.90	
	46	β Geminorum	48.2	2.0	--	--	--	--	--	35 55.10	+ 35.41	- - -	.11	7 36 5.40	2.36	
	47	ε Hydræ	35.8	48.2	1.0	13.4	26.0	38.8	51.3	39 13.50	— 0.52	- - -	.12	8 38 47.86	1.86	
	48	ξ Leonis	36.3	49.3	2.0	15.2	28.0	40.3	53.2	24 14.90	0.43	- - -	.14	9 23 49.33	1.91	
	49†	ο Leonis	54.0	6.4	19.4	32.2	44.8	57.5	10.0	33 32.04	0.46	- - -	.14	9 33 6.44	1.88	
	50	ε Leonis	2.2	15.8	29.3	43.0	56.5	10.0	24.0	37 42.97	— 0.21	- - -	— 25.14	9 37 17.62	+ 2.14	

Date.	CLOCK. At 6h.	Hourly rate.	VALUE OF m.	n.	c.
	s.	s.	s.	s.	s.
Jan. 27	f 6.30	l 0.025	— .572	+ .815	+ .031
Feb. 3	12.49	l .047			
6	25.20	g .053	— .662	+ .927	+ .031
7	f 25.09	g .015			

4. Very unsteady.
6. Extremely unsteady.
18. Feb. 5. A change in the time of the clock.
37 to 44. Somewhat unsteady.
49, 50. Very unsteady.

ATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0.	Observer.
849.			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.		
7	1†	α Leonis - - - -	7.5	20.2	33.0	46.0	59.0	12.0	24.5	0 46.03	— 0.42	- - -	— 25.15	10 0 20.46	+ 1.95	B.
	2	Moon, 2d L. - -	17.2	30.5	43.4	56.2	9.3	22.3	35.2	5 56.30	0.48	— 66.89	.15	10 4 23.78	- - -	
	3	θ Leonis - - - -	40.0	52.5	5.0	18.0	30.8	43.2	56.2	25 17.96	0.47	- - -	25.15	10 24 52.34	1.91	
7	4	β Orionis - - - -	6.6	19.2	31.7	44.4	56.9	9.7	22.2	7 44.39	0.77	- - -	26.05	5 7 17.57	2.20	K.
	5	δ Orionis - - - -	7.4	19.9	32.4	45.2	57.4	9.9	22.5	24 44.96	0.64	- - -	.04	5 24 18.28	+ 2.28	
	6	δ Ursæ Minoris, S. P.	56.0	30.0	0.5	30.0	2.0	32.5	3.0	21 30.57	16.76	- - -	.02	6 20 47.79	— 3.81	
	7	α Canis Majoris - - -	18.5	31 6	44.8	57.8	10.7	23.7	36.9	38 57.71	0.90	- - -	26.02	6 38 30.79	+ 1.47	
	8†	α Hydræ - - - -	--	--	25.5	38.4	50.9	3.5	15.9	20 50.84	13.39	- - -	25.97	9 20 11.48	1.47	
10	9†	α Orionis - - - -	49.0	1.4	14.0	26.8	39.3	52.0	4.5	47 26.71	0.44	- - -	.58	5 47 0.69	+ 2.35	B.
	10	δ Ursæ Minoris, S. P.	56.5	26.5	57.5	28.0	59.0	29.0	0.0	21 28.07	— 14.76	- - -	.57	6 20 47.74	— 4.10	
	11	α Canis Majoris - -	18.2	31.0	44.2	57.2	10.2	24.0	--	38 50.80	+ 5.75	- - -	.57	6 38 30.98	+ 1.50	
	12	δ Geminorum - - -	52.2	5.9	19.3	32.8	46.5	0.0	13.7	11 32.91	— 0.21	- - -	.56	7 11 7.14	2.37	
	13	α² Geminorum - -	40.2	55.0	9.5	24.2	39.1	54.0	8.5	25 24.36	0.02	- - -	.55	7 24 58.79	2.49	
	14	α Canis Minoris - -	13.3	26.0	38.4	51.0	3.5	16.0	28.7	31 50.99	0.46	- - -	.55	7 31 24.98	1.90	
	15	β Geminorum - - -	48.4	2.9	17.0	31.0	45.0	59.2	13.2	36 30.96	— 0.10	- - -	25.55	7 36 5.31	2.36	
12	16†	Dec. — 8° 20′ - -	8.4	21.0	33.4	--	--	--	--	6 20 93	+ 24.49	- - -	27.02	5 6 18.40	2.25	K.
	17	β Orionis - - - -	7.3	20.0	32.6	45.4	58.2	10.7	23.3	7 45.36	— 0.80	- - -	.02	5 7 17.54	2.24	
	18	α Leporis - - - -	--	--	--	32.8	46.2	59.4	12.7	26 52.77	20.70	- - -	.02	5 26 5.05	1.90	
	19	ε Orionis - - - -	24.2	36.7	49.3	1.5	14.2	26.7	39.0	29 1.66	0.68	- - -	.02	5 28 33.96	2.28	
	20	α Orionis - - - -	50.3	3.0	15.7	28.4	40.8	53.4	6.2	47 28.26	0.53	- - -	.02	5 47 0.71	+ 2.37	
	21	δ Ursæ Minoris, S. P.	--	31.0	2.5	33.0	4.5	34 0	4.0	23 18.17	— 2 2.83	- - -	.02	6 20 48.32	— 4.67	
	22	Dec. + 52° 10′ -	28.8	49.2	9.4	29.9	50.2	10.7	30.8	40 29.86	+ 0.60	- - -	27.01	6 40 3.45	+ 3.14	
13	23	α Canis Majoris - -	19.2	32.4	45.2	58.5	11.5	24.5	37.5	38 58.40	— 0.81	- - -	26.91	6 38 30.68	1.54	B.
	24	ε Canis Majoris - -	28.0	42.2	56.5	11.0	25.2	39.5	53.8	53 10.89	1.02	- - -	.91	6 52 42.96	1.07	
	25	δ Geminorum - - -	53.8	7.3	20.2	34.2	48.0	1.5	14.5	11 34.21	0.21	- - -	.91	7 11 7.09	2.40	
	26†	α² Geminorum - - -	41.5	56.0	11.0	25.0	40.5	55.0	10.0	25 25.57	0.03	- - -	.91	7 24 58.63	2.53	
	27	α Canis Minoris - -	14.5	27.1	39.8	52.3	5.0	17.5	30.0	31 52.31	0.47	- - -	.91	7 31 24.93	1.93	
	28	β Geminorum - - -	50.0	4.0	18.0	32.2	46.5	1.0	15.0	36 32.39	— 0.11	- - -	26.91	7 36 5.37	2.39	
19	29†	Tauri, (1562) - -	16.8	31.0	44.8	58.7	--	--	--	56 37.82	+ 20.78	- - -	25.26	4 56 33.34	3.05	K.
	30	Dec. + 26° 7′ - -	--	--	--	2.2	15.9	30.4	44.2	59 23.17	— 21.04	- - -	.26	4 58 36.87	3.03	
	31	Dec. + 26° 16′ -	45.2	59.2	--	27.0	41.0	54.9	8.7	3 29.33	2.47	- - -	.26	5 3 1.60	3.02	
	32	δ Orionis - - - -	6.7	19.2	31.4	44.2	56.8	9.2	21.6	24 44.16	0.56	- - -	.26	5 24 18.34	2.40	
	33†	ε Orionis - - - -	21.9	34.8	47.0	59.8	12.2	24.7	37.1	28 59.64	0.57	- - -	.26	5 28 33.81	2.36	
	34	α Orionis - - - -	48.3	0.8	13.6	26.4	39.0	51.7	4.2	47 26.29	0.45	- - -	— 25.26	5 47 0.58	2.45	
23	35†	δ Orionis - - - -	7.3	19.9	32.4	45.0	57.1	10.0	22.5	23 44.89	0.56	- - -	+ 33.88	5 24 18.21	2.47	B.
	36	ε Orionis - - - -	23.0	35.3	48.0	0.4	13.0	25.3	38.0	28 0.43	0.57	- - -	.88	5 28 33.74	2.45	
	37	α Orionis - - - -	49.0	2.0	14.4	27.2	39.5	52.0	5.0	46 27.16	0.45	- - -	33.88	5 47 0.59	2.52	
7	38†	α Orionis - - - -	54.6	7.5	19.5	32.5	45.0	58.0	11.0	46 32.59	0.45	- - -	28.37	5 47 0.51	+ 2.75	
	39	δ Ursæ Minoris, S. P.	11.0	40.5	11.0	42.0	12.5	42.5	12.5	20 41.71	15.16	- - -	.36	6 20 54.91	— 11.64	
	40	α Canis Majoris - -	23.7	37.0	50.0	3.0	16.1	29.2	42.0	38 3.00	0.81	- - -	.34	6 38 30.53	+ 1.89	
	41	ε Canis Majoris - -	32.2	46.7	1.0	15.0	29.2	43.5	58.0	52 15.09	1.02	- - -	.33	6 52 42.40	1.43	
	42	δ Geminorum - - -	58.2	12.0	25.2	39.0	52.0	6.0	19.5	10 38.84	0.21	- - -	.31	7 11 6.94	2.67	
	43	Moon, 1st L. - -	40.2	53.4	6.3	19.1	32.1	45.0	58.1	33 19.17	0.45	+ 65.53	.13	10 34 52.38	- - -	
	44	d Leonis - - - -	42.0	54.3	7.0	19.4	32.0	44.5	57.0	52 19.46	0.23	- - -	.11	10 52 47.34	1.61	
	45	χ Leonis - - - -	9.2	22.0	34.6	47.3	59.7	12.5	25.2	56 47.21	0.44	- - -	.11	10 57 14.88	1.63	
	46	δ Leonis - - - -	57.2	11.0	24.1	37.9	51.0	4.5	18.0	5 37.67	0.23	- - -	.10	11 6 5.54	1.82	
	47	δ Hydræ et Crateris -	43.1	56.1	9.2	22.0	34.5	48.0	0.6	11 21.93	0.77	- - -	.09	11 11 49.25	1.33	
	48	Polaris, S P. - -	28.0	27.6	32.0	31.6	31.0	30.0	34.0	4 30.60	33.85	- - -	28.04	13 4 24.79	37.22	
	49	α Virginis - - - -	11.0	23.4	36.0	49.0	1.3	14.0	27.0	16 48.81	0.71	- - -	27.98	13 17 16.08	1.73	
8	50	μ Geminorum - - -	--	--	--	--	35.9	49.5	3.2	13 49.53	27.31	- - -	.87	6 13 50.09	2.97	K.
	51	ε Canis Majoris - -	--	--	--	--	29.9	44.3	58.2	52 44.13	29.57	- - -	.86	6 52 42.42	1.47	
	52	15 Argus - - - -	0.0	13.8	27.4	41.2	54.9	8.7	22.2	0 41.17	— 0.93	- - -	+ 27.85	8 1 8.09	+ 1.30	

1, 2, 3. Very unsteady.
8. Flying clouds
10. Somewhat unsteady.
16 Very unsteady through the night.
26. Observation of little weight.
29 to 32. Very unsteady.
33, 34 Extremely unsteady.
35. At noon, stopped the clock for a few seconds.
38, 44, 45. Very unsteady.

Date.		CLOCK. At 7h.	Hourly rate.	VALUE OF m.	n.	c.
		s.	s.	s.	s.	s.
Feb.	7	f 25.10	g 0.015	— .662	+ .927	+ .031
	9	f 26.01	l .019			
	10	f 25.56	l .019	.572	.813	.031
	12	f 27.01	l .004	.690	.962	.031
	13	f 26.91	l .004	— .589	+ .836	+ .031
	19	f 25.26	.000			
	23	s 33.88	.000			
Mar.	7	s 28.32	g .055			
	8	s 27.86	g .015			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II	III.	IV.	V.	VI	VII	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1849.			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Mar. 8	1	d Leonis	42.3	54.7	7.3	19.8	32.2	44.7	57.5	52 19.79	— 0.50	- - -	+ 27.84	10 52 47.13	+ 1.61	K.
	2	χ Leonis	9.2	22.2	34.9	47.5	0.2	12.9	25.7	56 47.51	0.44	- - -	.84	10 57 14.91	1.64	
	3†	Moon, 1st L.	15.8	29.2	41.8	54.7	7.4	20.3	33.2	25 54.63	0.51	+ 64.26	.79	11 27 26.17	- - -	
	4	Moon, 2d L.	24.8	37.5	50.4	3.4	15.9	29.0	41.8	28 3.26	0.51	— 64.26	.79	11 27 26.28	- - -	
	5	β Virginis	--	59.0	11.4	24.0	36.1	48.8	1.6	42 30.15	— 6.78	- - -	27.79	11 42 51.16	1.62	
10	6	Polaris	9.0	14.0	13.0	--	--	--	--	47 12.00	+16 41.25	- - -	28.12	1 4 21.37	38.37	
	7	α Canis Majoris	--	--	--	--	--	29.3	42.3	38 35.80	— 33.57	- - -	.13	6 38 30.36	1.94	
	8	a^2 Geminorum	--	--	15.3	30.3	45.1	59.7	14.7	24 45.02	14.76	- - -	.13	7 24 58.39	2.86	
	9	α Canis Minoris	19.5	31.9	44.6	57.0	9.8	22.4	34.8	30 57.14	0.54	- - -	.13	7 31 24.73	2.20	
	10	β Geminorum	--	--	--	37.0	51.2	5.4	19.8	35 58.35	21.40	- - -	.13	7 36 5.08	2.69	
	11	15 Argus	59.9	13.6	27.3	41.0	54.6	8.2	22.0	0 40.94	1.09	- - -	.13	8 1 7.98	1.33	
12	12	ε Canis Majoris	32.7	46.9	1.0	15.2	29.7	43.9	58.3	52 15.39	— 1.19	- - -	.11	6 52 42.31	1.56	
	13	a^2 Geminorum	46.0	0.8	15.5	30.4	44.9	59.7	14.6	24 30.27	+ 0.02	- - -	.10	7 24 58.39	2.89	
	14	α Canis Minoris	19.3	31.9	44.6	56.9	9.7	22.2	34.6	30 57.03	— 0.54	- - -	.10	7 31 24.59	2.23	
	15	β Geminorum	54.4	8.6	22.8	37.1	51.4	5.3	19.7	35 37.04	0.07	- - -	.10	7 36 5.07	2.71	
	16	15 Argus	0.0	13.6	27.2	40.9	54.4	8.2	22.3	0 40.94	1.09	- - -	.09	8 1 7.94	1.34	
	17	δ Leonis	57.7	10.8	24.4	37.8	51.3	4.8	18.2	5 37.86	0.24	- - -	28.03	11 6 5.65	1.80	
16	18	ε Canis Majoris	35.9	50.1	4.3	18.7	32.9	47.1	1.3	52 18.61	1.19	- - -	24.72	6 52 42.14	1.65	
	19	δ Geminorum	--	--	28.9	42.6	55.7	9.3	22.9	10 55.88	— 13.72	- - -	.72	7 11 6.88	2.82	
	20	a^2 Geminorum	49.2	3.9	18.7	33.6	48.4	3.3	18.0	24 33.59	+ 0.02	- - -	.73	7 24 58.34	2.96	
	21	δ Leonis	--	14.4	27.4	41.3	54.5	8.0	21.6	5 47.87	— 6.96	- - -	.76	11 6 5.67	1.80	
	22	δ Hydræ et Crateris	46.4	59.7	12.4	25.4	38.3	51.2	4.2	11 25.37	0.89	- - -	24.76	11 11 49.24	1.31	
19	23	Sun, 1st L.	17.0	29.7	42.2	54.5	7.1	19.8	32.3	54 54.66	0.65	— 64.45	23.48	23 56 21.94	- - -	B.
	24	Sun, 2d L.	26.0	38.4	51.1	3.5	16.2	28.5	41.1	57 3.54	— 0.65	+ 64.45	.48	23 56 21.92	- - -	
	25	Polaris	8.0	9.0	9.0	12.0	10.0	12.0	12.0	3 10.29	+ 39.86	- - -	.50	1 4 13.65	40.80	
	26	a^2 Geminorum	50.3	5.0	19.7	34.5	49.3	4.0	19.0	24 34.54	+ 0.02	- - -	.63	7 24 58.19	3.03	
	27	α Canis Minoris	24.0	36.2	49.0	1.3	14.0	26.3	39.0	31 1.40	— 0.54	- - -	.63	7 31 24.49	2.32	
	28	β Geminorum	59.0	13.0	27.0	41.2	55.3	10.0	24.0	35 41.36	0.07	- - -	.63	7 36 4.92	2.84	
	29	β Corvi	26.3	40.0	53.3	7.0	20.6	33.9	47.8	26 6.99	1.05	- - -	.73	12 26 29.67	1.25	
	30†	Polaris, S. P.	28.0	30.0	30.0	31.0	30.0	29.0	31.0	4 29.86	41.18	- - -	.74	13 4 12.42	40.95	
	31	α Virginis	15.0	28.0	40.5	53.3	6.0	18.6	31.2	16 53.23	— 0.82	- - -	.74	13 17 16.15	1.55	
22	32	Polaris	15.5	19.5	16.5	17.0	18.0	16.5	--	59 17.17	+ 4 40.31	- - -	.29	1 4 20.77	41.74	K.
	33	a^2 Geminorum	50.3	5.0	19.8	34.6	49.3	4.2	19.0	24 34.60	+ 0.02	- - -	.56	7 24 58.18	3.08	
	34	15 Argus	4.3	17.9	31.9	45.1	59.3	12.8	26.4	0 45.39	— 1.09	- - -	23.58	8 1 7.88	1.53	
23	35	Sun, 1st L.	49.6	2.1	14.5	27.3	40.0	52.4	4.5	9 27.20	0.61	+ 64.39	24.28	0 10 55.26	- - -	B.
	36	Sun, 2d L	58.2	11.0	23.2	36.0	48.1	1.0	13.4	11 35.84	— 0.61	— 64.39	.28	0 10 55.12	- - -	
	37	Polaris	13.0	14.0	12.0	15.0	11.0	15.0	16.0	3 13.71	+ 39.86	- - -	.32	1 4 17.89	42.01	
	38	α Canis Minoris	22.7	35.2	48.0	0.3	13.0	25.3	38.1	31 0.37	— 0.54	- - -	.59	7 31 24.42	2.42	
	39	β Geminorum	57.9	12.0	26.3	40.4	54.5	9.0	23.0	35 40.44	0.07	- - -	.60	7 36 4.97	2.92	
	40	15 Argus	3.1	--	30.4	44.3	58.0	11.3	25.1	0 48.70	5.65	- - -	.61	8 1 7.66	1.55	
29	41	δ Leonis	1.0	14.5	28.0	41.4	54.9	8.0	21.4	5 41.31	0.24	- - -	.53	11 6 5.60	1.82	
	42	δ Hydræ et Crateris	47.1	0.0	13.0	25.8	38.4	51.3	4.1	11 25.67	0.89	- - -	.53	11 11 49.31	1.32	
	43	β Leonis	19.8	32.8	45.5	58.2	11.0	24.3	37.2	40 58.40	0.35	- - -	.51	11 41 22.56	1.61	
	44	α Bootis	44.0	57.0	10.2	24.0	37.2	50.2	3.5	8 23.73	0.26	- - -	24.43	14 8 47.90	1.37	
30	45	α Leonis	19.0	31.8	44.6	57.3	10.3	23.0	35.8	59 57.40	— 0.40	- - -	23.72	10 0 20.72	1.97	K.
	46	α Ursæ Majoris	37.5	4.7	31.5	58.9	26.1	53.2	20.4	53 58.90	+ 1.38	- - -	.69	10 54 23.97	1.93	
	47	Dec + 41° 24′	59.4	16.2	32.8	49.7	6.1	22.5	39.3	3 49.43	+ 0.28	- - -	.69	11 4 13.40	1.90	
	48	δ Hydræ et Crateris	47.8	0.8	13.5	26.4	39.4	52.4	5.2	11 26.50	— 0.89	- - -	23.68	11 11 49.29	1.30	
31	49	Polaris	16.0	18.0	17.0	18.0	16.0	18.5	21.5	3 17.86	- - -	- - -	- - -	- - - - -	- - -	B
April 2	50	Polaris	9.0	10.0	8.0	11.0	10.5	9.0	12.0	3 9.86	+ 39.83	- - -	24.17	1 4 13.86	42.80	
	51	Venus, 1st L.	27.2	41.0	54.7	8.3	22.1	36.0	49.6	21 8.41	— 0.18	+ 1.27	.24	3 21 33.74	- - -	
	52	α Canis Majoris	27.2	40.5	53.3	6.5	19.4	32.3	45.6	38 6.40	— 0.94	- - -	+ 24.34	6 38 29.80	+ 2.40	

Date.	CLOCK. At 9h.	Hourly rate.	VALUE OF m.	n.	c.
	s.	s.	s.	s.	s.
Mar. 8	s 27.83	g 0.015	— .589	+ .836	+ 0.31
10	28.13	l .002	— .665	+ 1.026	+ 0.31
12	28.07	g .020			
16	24.74	l .010			
19	23.66	l .020			
22	23.63	l .043			
23	24.66	l .043			
29	24.61	g .035			
30	s 23.76	g .035			

3, 4. Well defined.
30. Somewhat unsteady.

ATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam	Clock.	Observed R. Ascension	Reduc'n to 1850.0	Observer.
849.			s	s	s.	s.	s.	s	s.	m. s.	m. s.	s.	s.	h. m s.	s.	
il 2	1	ε Canis Majoris - -	36.0	50.1	4.4	18.8	33.0	47.1	1.7	52 18.73	— 1 19	- - -	+ 24.35	6 52 41.89	+ 2.02	B.
	2	δ Geminorum - - -	1.9	15.3	29.0	42 1	56.0	9 3	23.0	10 42.37	— 0.21	- - -	.36	7 11 6.52	3.14	
	3	α^2 Geminorum - - -	49.2	4.1	19.0	33.4	48.5	3.3	18.0	24 33.64	+ 0.02	- - -	.37	7 24 58.03	3.31	
	4	α Canis Minoris - -	23.0	35.4	48.0	0.4	13.0	25.6	38.2	31 0.51	— 0.54	- - -	.37	7 31 24.34	2.59	
	5	ε Bootis - - - -	18.0	32.2	46.0	0.2	14.3	28.4	42.5	38 0.23	0.09	- - -	.60	14 38 24.74	1.24	
	6	α^2 Libræ - - - - -	31.0	44.0	57.0	10.0	23.2	36.0	49.2	42 10.06	— 0.91	- - -	24.60	14 42 33.75	1.62	
5	7	Polaris - - - -	13.0	16.0	16.0	15.0	14.0	..	17.0	0 35.17	+ 3 18.78	- - -	26.34	1 4 20.29	43.02	K.
	8	ε Hydræ - - - -	43.2	55.9	8.4	21.0	33.7	46.2	58.8	38 21.03	— 0.51	- - -	.79	8 38 47.31	2.34	
	9	ι Ursæ Majoris - -	27.3	46.5	5.2	24.0	42.8	2.1	21.2	48 24.16	+ 0.55	- - -	.81	8 48 51.52	3 22	
	10	Jupiter, 1st L. - -	58.4	..	24.6	..	51.2	..	17.3	1 37.88	— 0.29	+ 1.45	.82	9 2 5.86	- - -	
	11	Jupiter, 2d L. - -	..	14.4	..	40.5	..	7 0	..	1 40.63	0.31	— 1.45	.82	9 2 5.69	- - -	
	12	σ Leonis - - - -	18.3	30.8	43.4	56.2	8.6	21.4	33.8	12 56.07	0.51	- . -	.95	11 13 22.51	1.64	
	13	τ Leonis - - - -	7.8	20.7	33.0	45.6	57.9	10.4	23.1	19 45.50	0.57	- - -	.96	11 20 11.89	1.59	
	14	Moon, 1st L. - -	..	54.8	7.5	20.4	33.5	46.2	58.7	57 26.85	6.87	+ 63.24	26.99	11 58 50.21	- - -	
	15	η Virginis - - - -	8.4	21.2	33.7	46.3	58.7	11.3	23.8	11 46.20	0.63	- - -	27.01	12 12 12.58	1.44	
6	16	ε Hydræ - - - -	41.3	54.1	7.0	19.4	32.0	44 7	57.1	38 19.37	— 0 51	- - -	28.46	8 38 47.32	2.36	B.
	17†	ι Ursæ Majoris - -	26.0	44.5	3.5	22.1	41.3	0.2	19.1	48 22.39	+ 0.55	- - -	.47	8 48 51.41	3.27	
	18	Jupiter, 1st L. - -	55.0	..	21.4	..	48.2	..	14.0	0 34.65	— 0.29	+ 1.45	.49	9 1 4.30	- - -	
	19	Jupiter, 2d L. - -	..	11.3	..	37.3	..	4.0	..	0 37.53	0.31	— 1.45	.49	9 1 4.26	- - -	
	20	α Hydræ - - - -	5.2	18.0	30.8	43.3	56.6	8.4	21.1	19 43.26	0.78	- - -	.51	9 20 10.99	1.84	
	21	ε Leonis - - - -	7.8	21.2	35.0	49.0	2.6	16.3	30.0	36 48.84	0.16	- - -	.53	9 37 17.21	2.36	
	22	η Virginis - - - -	7.1	19.6	32.0	44.6	57.2	9.5	22.1	11 44.59	0.63	- - -	.71	12 12 12.67	1.45	
	23	γ Virginis - - - -	57.0	9.3	21.7	34.2	47.0	59.3	12.0	33 34.36	0.64	- - -	.73	12 34 2.45	1.39	
	24	Moon, 1st L. - -	11.3	24.4	37.0	49.7	2.5	15.3	28.2	46 49.77	0.69	+ 62.68	.75	12 48 20.51	- - -	
	25	Moon, 2d L. - -	16.5	29.3	42.1	55.1	8.0	20.5	33.4	48 54.99	0.69	— 62.68	.75	12 48 20.37	- - -	
	26	α Virginis - - - -	10.4	23.3	35.9	48.8	1.2	14.0	26.8	16 48.63	0.82	- - .	28.78	13 17 16.59	1.37	
10	27	ε Leonis - - - -	1.8	15.3	29.0	42.9	56.4	10.3	24.0	36 42.81	0.13	- - -	34 53	9 37 17.21	2.43	
	28	α Leonis - - - -	8.0	21.0	33.4	46.2	59.1	12.0	25.0	59 46.39	— 0.40	- - -	.53	10 0 20.52	2.08	
	29	α Ursæ Majoris - -	26.0	53.0	20.3	47.5	14.5	41.5	9.0	53 47.40	+ 1.59	- - -	.55	10 54 23.54	2.17	
	30	δ Leonis - - - -	51.0	4.1	18.0	31.1	45.0	58.0	11.5	5 31.24	— 0.21	- - -	.55	11 6 5.58	1.89	
	31	δ Hydræ *et* Crateris -	37.2	50.0	3.0	15.8	28.5	41.2	54.4	11 15.73	0.94	- - -	.56	11 11 49.35	1.39	
	32	ε Bootis - - - - -	8.0	22 2	36.2	50.5	4.7	18.9	33.0	37 50.50	0.05	- - -	.62	14 38 25.07	1.12	
	33	α^2 Libræ - - - - -	21.1	34.0	47.2	0.2	13.0	26.0	39.0	42 0.07	0.97	- - -	.62	14 42 33.72	+ 1.49	
	34	β Ursæ Minoris - -	..	1.5	49.0	37.0	24.5	12.5	0.0	51 0.75	20.16	- - -	.62	14 51 15.21	— 3.24	
	35	β Libræ - - - - -	43.1	55.5	8.2	21.0	33.5	46.2	59.0	8 20.93	0.83	- - -	.63	15 8 54.73	+ 1.56	
	36	Libræ (5125) - -	45.5	58.3	11.0	23 6	36.2	49.0	1.7	25 23.61	0.85	- - -	.63	15 25 57.39	1.63	
	37	α Serpentis - - - -	39.3	52.0	4.7	17.3	30.0	42.5	55.1	36 17.27	0.51	- - -	.63	15 36 51.39	1.50	
	38	Libræ (5290) - -	33.6	46.3	59.2	12.1	25.0	38.0	51.0	49 12.17	0.94	- - -	.64	15 49 45.87	1.74	
	39	β^1 Scorpii - - - -	28.1	41.3	54.6	8.0	21.2	34.4	47.7	56 7.90	1.06	- - -	.64	15 56 41.48	1.82	
	40	Moon, 2d L - - -	4.0	17.2	30.7	44.1	57.4	11.0	24.0	5 44.06	1.01	— 63.49	.64	16 5 14.20	- - -	
	41	ψ Ophiuchi - - - -	4.4	17.7	31.0	44.3	57.7	10.7	24.2	14 44.29	1.06	- - -	.65	16 15 17.88	1.91	
	42	φ Ophiuchi - - - -	18.9	32.0	44.8	57.7	11.0	24.0	37.1	21 57.93	0.99	- - -	.65	16 22 31.59	1.92	
	43	Mercury, 2d L - -	35.8	48.2	0.8	13.8	..	..	51.2	6 6.60	+ 6.81	— 0.19	34.83	0 6 48.05	- - -	
11	44	Venus, 1st L. - -	32.4	46.4	0.4	14.2	27.9	41.8	55.7	38 14.11	— 0.11	+ 1.49	35.11	3 38 50.60	- - -	K.
	45	α Hydræ - - - -	58.4	11.1	23.7	36.4	49.1	1.6	14.2	19 36.36	0.82	- - -	.48	9 20 11.02	1.90	
	46	ε Leonis - - - -	0.5	14.3	28.0	41.8	55.5	9.3	23.0	36 41.77	0.13	- - -	.59	9 37 17.23	2.45	
	47	α Leonis - - - -	6.8	19.8	32.6	45.4	58.2	11.0	23.8	59 45.37	0.40	- - -	.61	10 0 20.58	2.11	
	48	α Bootis - - - - -	32.4	45.6	58.9	12.3	25.5	38.9	52.2	8 12.26	0.24	- - -	35 95	14 8 47.97	1.19	
	49†	Mercury, 2d L. - -	31.3	44.0	57.0	9.4	22.0	34.5	47.1	12 9.33	0.6[illegible]	— 0.19	37.27	0 12 45.73	- - -	B.
12	50	Venus, 1st L. - -	51.2	5.0	19.0	32.9	46.7	0.5	14.3	39 32.80	0.11	+ 1.52	.46	2 40 11.67	- - -	
	51	ε Hydræ - - - -	32.0	44.5	57.2	10.0	22.5	35.0	47.6	38 9.83	— 0.51	- - -	+ 37.87	8 38 47.19	+ 2.45	

17, 21. Unsteady.
49. Dim and unsteady.

Date.	CLOCK. At 10h.	Hourly rate.	VALUE OF m.	n.	c.
	s.	s.	s.	s.	s.
April 2	s 24.45	l 0.032	— .665	+ 1.026	+ .021
5	26.88	.060			
6	28.56	.069			
10	34.53	.018	— .687	+ 1.148	+ .031
11	35.62	.080			
12	s 38.03	l .077			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam	Clock.	Observed R Ascension.	Reduct'n to 1850.0	Observer.
1849.			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
April 12	1	ι Ursæ Majoris	16.0	35.2	54.0	13.0	32.0	50.5	9.3	48 12.86	+ 0.66	- - -	+ 37.94	8 48 51.46	+ 3.42	B.
	2	Jupiter, 1st L.	52.2	--	19.0	--	45.1	--	11.7	0 32.00	— 0.27	+ 1.42	.95	9 1 11.10	- - -	
	3	Jupiter, 2d L.	--	8.2	--	35.0	--	1.2	--	0 34.80	0.29	— 1.42	.95	9 1 11.04	- - -	
	4	α Hydræ	56.0	8.8	21.4	34.0	46.4	59.2	12.0	19 33.97	0.82	- - -	37.97	9 20 11.12	1.93	
	5	ε Leonis	58.2	12.0	25.5	39.3	53.0	6.5	20.2	36 39.24	0.13	- - -	38.00	9 37 17.11	2.47	
	6	α Leonis	4.6	17.2	30.1	43.0	55.8	8.4	21.2	59 42.90	— 0.40	- - -	.02	10 0 20.52	2.12	
	7	α Ursæ Majoris	22.5	49.2	17.0	44.0	11.0	38.0	5.4	53 43.87	+ 1.59	- - -	.10	10 54 23.56	2.22	
	8	δ Leonis	47.3	0.9	14.0	27.7	41.0	54.3	8.0	5 27.60	— 0.21	- - -	.11	11 6 5.50	1.91	
	9	δ Hydræ *et* Crateris	33.7	46.3	59.0	12.0	25.0	38.0	50.8	11 12.11	0.94	- - -	38.12	11 11 49.29	1.40	
14	10†	α Leonis	0.5	13.0	26.0	39.0	52.0	4.5	17.3	59 38.90	0.40	- - -	41.82	10 0 20.32	2.15	
	11	δ Hydræ *et* Crateris	30.0	42.3	55.0	8.0	21.0	34.0	47.0	11 8.19	0.94	- - -	.94	11 11 49.19	1.42	
	12	β Leonis	2.2	15.0	28.0	41.0	54.0	7.0	20.0	40 41.03	0.34	- - -	41.99	11 41 22.68	1.64	
	13	Polaris, S. P.	23.0	23.0	24.0	23.0	21.0	22.0	22.0	4 22.57	45.82	- - -	42.12	13 4 18.87	41.78	
	14	α Virginis	57.0	10.0	22.5	35.2	48.0	1.0	13.4	16 35.30	0.87	- - -	42.11	13 17 16.57	1.32	
16	15	Jupiter, 1st L.	3.1	--	29.4	--	55.3	--	22.1	0 42.48	0.27	+ 1.41	46.77	9 1 30.39	- - -	
	16	Jupiter, 2d L.	--	19.2	--	45.3	--	11.4	--	0 45.30	0.29	— 1.41	.77	9 1 30.37	- - -	
	17	α Hydræ	47.1	59.7	12.4	25.2	37.5	50.0	3.0	19 24.99	0.82	- - -	.80	9 20 10.97	1.96	
	18	ε Leonis	49.2	3.0	16.8	30.4	44.1	58.0	11.7	36 30.46	0.13	- - -	.83	9 37 17.16	2.53	
	19	α Leonis	55.9	8.4	21.2	34.0	46.8	59.4	12.2	59 33.99	— 0.40	- - -	46.86	10 0 20.45	2.17	
18	20	α Ursæ Majoris	8.5	36.0	3.3	30.2	57.2	25.0	52.7	53 30.41	+ 1.59	- - -	51.09	10 54 23.09	2.38	
	21	δ Leonis	34.2	47.7	1.0	14.7	27.5	41.2	54.5	5 14.40	— 0.21	- - -	.10	11 6 5.29	1.96	
	22	δ Hydræ *et* Crateris	20.4	33.3	46.0	59.2	11.9	25.0	38.0	10 59.11	0.94	- - -	.11	11 11 49.28	1.45	
	23	β Leonis	52.9	5.8	18.7	31.9	44.5	57.5	10.7	40 31.71	0.34	- - -	.15	11 41 22.52	1.69	
	24†	β Corvi	59.2	12.5	26.2	39.8	53.2	7.0	20.2	25 39.73	— 1.13	- - -	.20	12 26 29.80	1.17	
	25†	Polaris, S. P.	16.0	15.0	16.0	--	--	--	--	48 15.67	+15 13.28	- - -	+ 51.26	13 4 20.21	41.32	
19	26†	α Leonis	49.6	2.4	15.3	28.0	40.8	53.7	6.4	0 28.03	— 0.40	- - -	— 7.25	10 0 20.38	2.18	K.
	27	Leonis	32.5	45.9	59.3	12.8	26.1	39.6	53.1	6 12.76	0.21	- - -	.14	11 6 5.41	1.94	
	28	δ Hydræ *et* Crateris	18.5	31.7	44.6	57.4	10.3	20.2	36.0	11 57.39	0.94	- - -	.13	11 11 49.32	1.43	
	29	Dec. + 15° 5′	22.1	35.0	47.9	1.2	13.9	27.1	40.0	41 1.03	0.35	- - -	.08	11 40 53.60	1.71	
	30	β Corvi	57.3	10.9	24.3	38.0	51.4	5.2	18.5	26 37.94	1.13	- - -	7.01	12 26 29.80	1.17	
	31†	Polaris, S. P.	17.0	18.0	17.0	17.0	15.0	12.0	15.0	5 15.86	45.82	- - -	6.96	13 4 23.08	41.15	
	32	η Bootis	58.4	11.8	25.2	38.3	51.3	4.9	18.2	47 38.30	0.26	- - -	.88	13 47 31.16	1.25	
	33	Dec. + 24° 4′	45.5	59.3	12.8	26.8	40.3	54.2	7.7	50 26.66	0.15	- - -	6.88	13 50 19.63	1.19	
20	34	ε Leonis	40.5	54.0	7.9	21.7	35.2	49.2	3.0	37 21.64	0.13	- - -	4.44	9 37 17.07	2.59	B.
	35	α Leonis	47.0	59.5	12.5	25.3	38.1	51.0	4.0	0 25.34	— 0.40	- - -	.40	10 0 20.54	2.20	
	36	Dec. + 22° 43′	45.0	59.0	12.3	26.0	--	--	--	36 5.58	+ 20.18	- - -	.10	13 36 21.66	1.24	
	37	Dec. + 22° 43′	--	--	--	56.0	9.2	23.0	36.2	37 16.10	— 20.52	- - -	.10	13 36 51.48	1.24	
	38†	Dec. + 22° 43′	--	--	--	--	--	--	57.0	37 57.00	40.88	- - -	.10	13 37 12.02	1.24	
	39	Dec. + 22° 43′	--	--	--	--	33.2	47.5	1.0	38 47.23	— 27.30	- - -	.10	13 38 15.83	1.24	
	40	Dec. + 22° 43′	54.5	8.0	22.0	35.0	--	--	--	41 14.88	+ 20.18	- - -	.09	13 41 30.97	1.23	
	41	Dec. + 22° 43′	--	--	--	--	--	31.0	44.5	42 37.75	— 34.08	- - -	.09	13 41 59.58	1.23	
	42	Dec. + 23° 47′	0.0	14.2	27.5	41.5	--	--	--	51 20.80	+ 20.36	- - -	.07	13 51 37.09	1.19	
	43	Dec. + 23° 47′	--	--	--	24.5	38.5	51.5	5.2	52 44.93	— 20.66	- - -	.07	13 52 20.20	1.18	
	44	Dec. + 23° 47′	--	--	--	--	--	--	26.5	53 26.50	41.18	- - -	.07	13 52 41.25	1.18	
	45	Dec. + 23° 47′	--	--	10.5	24.3	38.0	--	--	54 24.27	0.14	- - -	.07	13 54 20.06	1.18	
	46†	ε Bootis	47.0	1.0	15.0	29.3	43.0	57.0	11.3	38 29.09	0.05	- - -	.02	14 38 25.02	1.01	
	47	α^2 Libræ	0.5	13.0	26.0	38.7	51.3	4.5	17.5	42 38.79	0.97	- - -	4.01	14 42 33.81	1.36	
	48	β Libræ	22.0	34.5	47.2	0.0	12.4	25.2	38.0	8 59.90	0.83	- - -	3.97	15 8 55.10	1.41	
	49	α Coronæ Borealis	41.0	55.1	9.2	23.2	37.3	51.3	5.3	28 23.20	0.07	- - -	.94	15 28 19.19	0.97	
	50†	α Serpentis	18.2	31.0	43.4	56.1	8.8	21.2	34.0	36 56.10	0.51	- - -	— 3.93	15 36 51.66	1.33	
30	51	Moon, 1st L.	14.0	27.1	40.0	53.1	5.9	19.0	32.2	58 53.04	0.45	+ 65.91	+ 7.74	10 0 6.24	- - -	
	52	α Leonis	--	--	--	13.0	26.0	38.5	51.4	0 32.23	— 19.64	- - -	+ 7.74	10 0 20.33	+ 2.36	

Date.	CLOCK. At 12h.	Hourly rate.	VALUE OF m.	n.	c.
	s.	s.	s.	s.	s.
April 12	s 38.18	l 0.077	— .687	+1.148	+ .031
14	42.02	.092			
16	47.06	.095			
18	s 51.17	.078			
19	f 7.05	.093			
20	f 4.23	.084			
30	s 7.81	l .039			

10. Extremely unsteady through the night.
24. A strong wind made it difficult to hear the clock-beat.
25. Cloudy.
26. The minute hand of the clock having been set forward one minute.
31. Very steady. Observation good.
38 to 45. Observations of little weight.
46 to 49. Extremely unsteady.
50. Unsteady; misty.

ATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer
849.			s.	s.	s.	s	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
il 30	1	Dec. — 3° 51′ - -	--	47.2	59.5	12.2	--	--	--	25 59.63	+ 11.80	- - -	+ 7.75	10 26 19.18	+ 1.92	P.
	2	Dec. — 3° 51′ - -	--	36.0	48.5	1.0	--	--	--	27 48.50	+ 11.80	- - -	.76	10 28 8.06	1.91	
	3	Dec. — 3° 51′ - -	--	--	33.0	45.5	58.0	10.3	--	28 51.70	— 7.00	- - -	.76	10 28 52.46	1.90	
	4	Dec. — 0° 46′ - -	15.3	28.0	40.4	53.0	5.2	17.7	30.3	44 52.84	0.67	- - -	.76	10 44 59.93	1.88	
	5	Dec. — 0° 46′ - -	--	--	--	51.0	3.5	16.0	28.5	46 9.75	19.44	- - -	.77	10 45 58.08	1.87	
	6	Dec. — 0° 46′ - -	--	--	--	45.3	58.0	10.3	23.0	47 4.15	19.44	- - -	.77	10 46 52.48	1.87	
	7	Dec. — 0° 46′ - -	--	--	5.0	17.5	30.0	42.3	55.0	48 29.96	13.18	- - -	.77	10 48 24.55	1.86	
	8	δ Leonis - - - -	17.6	31.0	44.2	57.8	11.1	24.9	37.9	5 57.79	0.21	- - -	.78	11 6 5.36	2.09	
	9	δ Hydræ & Crateris -	3.5	16.3	29.3	42.3	55.0	8.0	21.0	11 42.20	0.94	- - -	.78	11 11 49.04	1.55	
	10	β Leonis - - - -	36.0	49.0	2.0	15.0	28.0	41.0	54.0	41 15.00	0.34	- - -	.80	11 41 22.46	1.78	
	11	β Corvi - - - - -	42.3	56.0	9.3	23.0	36.5	50.1	3.7	26 22.99	1.13	- - -	.83	12 26 29.69	1.21	
	12	Polaris, S. P. - -	0.0	0.0	1.0	0.0	0.0	57.0	58.0	4 59.43	45.82	- - -	.86	13 4 21.47	37.51	
	13	α Virginis - - - -	31.2	44.1	57.0	9.6	22.1	35.0	47.8	17 9.54	0.87	- - -	.87	13 17 16.54	1.28	
	14	η Bootis - - - - -	44.0	57.0	10.2	23.5	37.0	50.0	3.2	47 23.56	0.26	- - -	.89	13 47 31.19	1.22	
	15	α Bootis - - - - -	0.5	14.0	27.4	40.5	53.2	7.0	20.3	8 40.41	0.24	- - -	.90	14 8 48.07	1.09	
	16	ε Bootis - - - - -	35.0	49.0	3.3	17.5	31.2	45.7	0.0	38 17.39	0.05	- - -	.92	14 38 25.26	0.93	
	17	α² Libræ - - - - -	48.2	1.0	14.0	27.0	40.0	53.0	6.0	42 27.03	— 0.97	- - -	.92	14 42 33.98	+ 1.26	
	18	β Ursæ Minoris - -	41.0	29.0	16.5	4.0	52.0	39.0	27.0	51 4.07	+ 3.65	- - -	.92	14 51 15.64	— 3.60	
	19	β Libræ - - - - -	10.1	22.8	35.5	48.0	0.8	13.2	26.0	8 48.06	— 0.84	- - -	7.94	15 8 55.16	+ 1.28	
y 2	20	Dec — 3° 50′ - -	6.2	19.0	31.3	43.6	--	--	--	28 25.03	+ 18.07	- - -	9.84	10 28 52.94	1.94	
	21	Dec. — 3° 50′ - -	--	--	19.3	32.0	45.0	57.2	10.0	29 44.70	— 13.27	- - -	.85	10 29 41.28	1.93	
	22	Dec. — 3° 37′ - -	38.4	51.1	3.6	16.2	29.0	41.3	53.7	35 16.19	0.73	- - -	.86	10 35 25.32	1.91	
	23	Dec. — 0° 45′ - -	13.5	26.1	38.3	51.0	3.5	15.5	28.5	44 50.91	0.67	- - -	.87	10 45 0.11	1.91	
	24	Dec. — 0° 45′ - -	6.0	18.4	30.9	43.5	56.0	8.8	21.3	46 43.56	0.67	- - -	.87	10 46 52.76	1.90	
	25	Dec. — 0° 45′ - -	--	50.3	3.0	15.5	28.2	40.5	53.2	48 21.78	6.93	- - -	.87	10 48 24.72	1.89	
	26	χ Leonis - - - -	27.5	40.0	52.3	5.2	17.3	30.3	43.3	57 5.13	0.49	- - -	.88	10 57 14.52	1.96	
	27	δ Leonis - - - -	15.2	29.0	42.3	55.5	9.0	22.5	36.0	5 55.64	0.21	- - -	.89	11 6 5.32	2.09	
	28	σ Leonis - - - -	34.9	47.5	0.0	12.7	25.2	38.0	50.5	13 12.69	0.51	- - -	.90	11 13 22 08	1.86	
	29	Moon, 1st L. - -	15.0	27.3	40.5	53.2	6.2	18.7	31.4	41 53.19	0.62	+ 63.21	.94	11 43 5.72	- - -	
	30	η Virginis - - - -	25.3	38.0	50.5	3.1	15.5	28.0	40.6	12 3.00	0.66	- - -	.97	12 12 12.31	1.52	
	31	β Corvi - - - - -	40.2	54.0	7.2	21.0	34.3	48.0	1.5	26 20.89	1.13	- - -	9.99	12 26 29.75	1.20	
	32	Polaris, S. P. - -	2.7	3.0	2.7	59.7	1.0	57.0	59.5	5 0.80	45.82	- - -	10.04	13 4 25.02	36.85	
	33	α Virginis - - - -	29.1	42.0	54.5	7.2	20.0	32.8	45.2	17 7.26	0.87	- - -	.05	13 17 16.44	1.28	
	34†	Dec. + 22° 40′ -	40.5	54.0	7.6	21.5	35.0	48.5	2.0	41 21.30	0.17	- - -	.08	13 41 31.21	1.14	
	35	Dec. + 22° 40′ -	--	--	51.5	5.0	18.4	32.0	45.8	43 18.54	13.72	- - -	.08	13 43 14.90	1.14	
	36	Dec. + 23° 56′ -	39.2	53.0	6.5	20.2	34.0	47.5	1.5	54 20.27	0.15	- - -	.10	13 54 30.22	1.13	
	37	Dec. + 23° 56′ -	1.3	15.0	--	42.5	56.0	9.5	23.5	58 44.63	2.43	- - -	.10	13 58 52.30	1.10	
	38	α Bootis - - - -	58.2	11.5	25.0	38.2	51.3	5.0	18.0	8 38.17	0.24	- - -	10.11	14 8 48.04	1.08	
3	39†	η Bootis - - - - -	40.1	53.4	6.7	19.8	33.1	46.3	59.6	47 19.85	0.26	- - -	11.69	13 47 31.28	1.19	K.
	40	α Bootis - - - - -	56.9	10.0	23.2	36.5	49.9	3.2	16.5	8 36.60	0.24	- - -	.71	14 8 48.07	1.08	
	41	ε Bootis - - - - -	31.0	45.2	59.4	13.6	27.8	41.9	55.9	38 13.54	0.05	- - -	.74	14 38 25.23	0.89	
	42	α² Libræ - - - - -	44.3	57.3	10.2	23.4	36.3	49.3	2.2	42 23.29	0.97	- - -	11.75	14 42 34.07	1.23	
4	43	Sun, 1st L. - - -	28.3	41.3	54.1	7.2	20.0	33.0	46.2	45 7.16	- - -	- - -	- -	- - -	- - -	B
	44	Sun, 2d L. - - -	40.5	53.4	6.4	19.6	32.5	46.0	59.2	47 19.66	- - -	- - -	- -	- - -	- - -	
	45	Venus, 1st L. - -	54.5	8.3	22.0	35.6	49.4	3.0	16.5	31 35.61	- - -	- - -	- -	- - -	- - -	
.9	46	τ Leonis - - - -	16.6	29.2	41.5	54.3	6.8	19.2	31.7	19 54.19	0.66	- - -	17.91	11 20 11.44	1.88	K.
	47	Crateris, (3925) -	13.7	26.1	38.9	51.4	3.8	16.6	29.2	24 51.39	0.91	- - -	.91	11 25 8.39	1.70	
	48	ν Leonis - - - -	--	--	44.4	57.1	9.6	22.1	34.4	29 9.52	13.26	- - -	.91	11 29 14.17	1.79	
	49	ζ Crateris - - - -	12.1	25.2	38.2	51.4	4.6	17.7	30.8	36 51.43	1.17	- - -	.92	11 37 8.18	1 50	
	50	β Leonis - - - -	25.8	38.8	51.8	4.7	17.7	30.7	43.7	41 4.74	0.37	- - -	.92	11 41 22.29	1.86	
	51	β Corvi - - - - -	32.4	46.0	59.4	13.0	26.4	40.2	53.8	26 13.03	0.90	- - -	.95	12 26 30 08	1.25	
	52	Virginis, (4286) -	5.2	18.2	30.8	43.3	55.9	8.6	21.4	37 43.34	— 0.55	- - -	+ 17.96	12 38 0.75	+ 1.53	

34 to 37. Just visible; magnitude uncertain; hazy.
39. Very steady through the night.

Date.	CLOCK. At 13h.	Hourly rate.	VALUE OF m.	n.	c.
	s.	s.	s.	s.	s.
April 30	s 7.85	l 0.039	— .687	+ 1.148	+ .031
May 2	10.03	.072			
3	11.63	.067			
9	s 17.97	l .038	— .779	+ 1.350	+ .031

Date.	No. for ref	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1849.			s.	s.	s.	s	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
May 9	1	12 Canum Venaticorum	52.3	8.2	24.3	10.7	56.6	12.8	28.9	48 40.54	+ 0.35	- - -	+ 17.96	12 48 58 85	+ 1.42	K.
	2	ν Bootis - - - - -	16.3	29.6	42.4	55 7	8.8	21.8	34.8	41 55.63	— 0.34	- - -	18.00	13 42 13.29	1.24	
	3	η Bootis - - - - -	33.9	47.1	0.2	13.4	26.8	40.2	53.4	47 13.57	0.28	- - -	.00	13 47 31.29	1.20	
	4	α Bootis - - - - -	50.5	3.6	16.9	30.4	43.9	57.2	10.3	8 30.40	0.26	- - -	.01	14 8 48.15	1.04	
	5	π Bootis - - - - -	42.8	55.9	8.9	21.8	35.0	48.0	1.4	33 21.97	0.33	- - -	.03	14 33 39.67	1.05	
	6	ε Bootis - - - - -	24.9	39.1	53.2	7.4	21.4	35.4	49.5	38 7.27	0.03	- - -	.03	14 38 25.27	0.87	
	7	α^2 Libræ - - - - -	38.2	--	4.1	16.9	30.2	43.0	56.2	42 21.43	5.44	- - -	.04	14 42 34.03	1.17	
	8	β Libræ - - - - -	--	--	25.3	37.9	50.9	3.3	16.2	8 50.72	13.62	- - -	.05	15 8 55.15	1.18	
	9	α Coronæ Borealis -	19.3	33.4	47.2	1.4	15.5	29.6	43.6	28 1.43	0.04	- - -	18.07	15 28 19.46	0.73	
11	10	Virginis, (4063) -	56.7	9.2	21.9	34.4	46.9	59.3	11.8	55 34.31	0.85	- - -	20.05	11 55 53.51	1.62	
	11	Virginis, (4083) -	21.3	33.6	46.2	58.7	11.3	23.7	36.3	59 58.73	0.71	- - -	.06	12 0 18.08	1.66	
	12	Virginis, (4114) -	48.1	0.7	13.4	26.3	39.0	51.7	4.6	5 26.26	0.48	- - -	.06	12 5 45.84	1.71	
	13	Virginis, (4168) -	55.6	8.1	20.7	33.3	45.8	58.5	11.0	14 33.29	0.61	- - -	.07	12 14 52.75	1.62	
	14	β Corvi - - - - -	30.1	43.8	57.3	10.8	24.6	37.6	51.7	26 10.84	1.31	- - -	.08	12 26 29.61	1.27	
	15	α Serpentis - - - -	54.3	6.8	19 5	32.2	44.7	57.2	9.8	36 32.07	0.58	- - -	.25	15 36 51.74	1.07	
	16	δ Ophiuchi - - - -	31 0	43.5	55.8	8.7	21.2	34.2	46.3	6 8.67	0.82	- - -	.27	16 6 28.12	1.18	
	17	α Scorpii - - - -	11.1	24.9	39.2	52.6	6.6	20.8	34.4	19 52.80	1.40	- - -	20.28	16 20 11.68	1.36	
14	18	β Leonis - - - -	19.2	32.0	45.0	58.0	11.0	23.8	37.1	40 58.01	0.37	- - -	24.69	11 41 22.33	1.92	B.
	19	β Corvi - - - - -	25.5	39.2	52.4	6.1	20.0	33.2	47.0	26 6.20	1.31	- - -	.74	12 26 29.63	1.29	
	20	Polaris, S. P. - -	0.0	0.0	0.0	59.0	58.0	55.0	54.0	4 58.00	53.55	- - -	.79	13 4 29.24	30 70	
	21	α Virginis - - - -	14.4	27.2	40.0	52.7	5.3	18.0	30.8	16 52.63	— 1.00	- - -	.81	13 17 16.44	1.31	
	22	η Ursæ Majoris - -	12.5	32.0	51.5	11.0	30.5	50.0	9.0	41 10.93	+ 0.88	- - -	.84	13 41 36.65	0.75	
	23	η Bootis - - - - -	27.0	40.3	53.3	6.6	20.0	33.1	46.2	47 6.64	— 0.27	- - -	.85	13 47 31.22	1.22	
	24†	α Bootis - - - - -	43.5	57.0	10.0	23.3	37.0	50.0	3 3	8 23.44	0.26	- - -	.87	14 8 48.05	1.06	
	25	ε Bootis - - - - -	18.0	32.3	46.0	0.4	14.5	28.8	43.0	38 0.43	0.03	- - -	.90	14 38 25.30	0.88	
	26	α^2 Libræ - - - - -	31.4	44.4	57.3	10.4	23.2	36.2	49.2	42 10.30	— 1.12	- - -	.91	14 42 34.09	+ 1.16	
	27	β Ursæ Minoris - -	23.5	11.0	59.0	46.0	33.0	21.0	9.0	50 46.07	+ 4.30	- - -	.92	14 51 15.29	— 3.50	
	28	α Coronæ Borealis -	12.4	26.4	40.5	54.7	8.7	22.8	36.7	27 54.60	— 0.04	- - -	.96	15 28 19.52	+ 0.71	
	29	α Serpentis - - - -	49.7	2.2	15.0	27.5	40.1	52.7	5.3	36 27.50	0.63	- - -	24.98	15 36 51.85	1.04	
15	30	Virginis, (4168) -	49.4	2.0	14.7	27.1	39.6	52.5	4.9	14 27.17	0.61	- - -	26.14	12 14 52.70	1.66	K.
	31	Virginis, (4200) -	5.4	17.7	30.6	43.0	55.5	8.3	20.3	19 42.97	0.83	- - -	.14	12 20 8.28	1.54	
	32	β Corvi - - - - -	24.1	37.5	51.3	4.7	18.3	31.8	45.3	26 3.71	— 1.31	- - -	.14	12 26 29.54	1.30	
	33	12 Canum Venaticorum	43.6	0.0	16.2	32.2	48.2	4.5	20.3	48 32.14	+ 0.35	- - -	.15	12 48 58.64	1.48	
	34	α Virginis - - - -	12.9	25.8	38.6	51.3	4.2	16.9	29.4	16 51.30	— 1.00	- - -	.16	13 17 16.46	1.31	
	35	η Bootis - - - - -	25.7	39.0	52.2	5.3	18.4	31.9	45.1	47 5.37	0.27	- - -	.17	13 47 31.27	1.28	
	36	α Bootis - - - - -	42.1	55.8	9.0	22.2	35.4	48.9	2.3	8 22.24	0.26	- - -	.18	14 8 48.16	1.04	
	37	Libræ, (4941) - -	28.3	40.7	53.4	6.1	18.2	31.2	43.5	53 5.91	0.80	- - -	.20	14 53 31.31	1.13	
	38	β Libræ - - - - -	52.0	4.7	16.9	29.9	12.7	55.2	8.2	8 29.94	0.95	- - -	.20	15 8 55.19	1.12	
	39	α Coronæ Borealis -	--	--	--	--	7.3	21.3	35.6	28 21.40	28.18	- - -	.21	15 28 19.43	0.71	
	40	α Serpentis - - - -	--	--	13.6	26.2	39.1	51.3	4.2	36 38.88	13.23	- - -	.21	15 36 51.86	1.00	
	41	β^1 Scorpii - - - -	37.3	50.8	4.0	17 0	30.5	43.6	56.8	56 17.14	1.22	- - -	.22	15 56 42.14	1.19	
	42	δ Ophiuchi - - - -	24.9	37.7	50.2	2.6	15.3	27.9	40.3	6 2.70	0.82	- - -	.22	16 6 28.10	1.10	
	43	α Scorpii - - - -	--	--	32.5	47.2	0.9	14.8	28.8	20 0.84	15.32	- - -	26.23	16 20 11.75	1.26	
16	44	Sun, 1st L. - - -	1.7	14.9	28.0	41.1	54.5	7.9	20.9	31 41.29	0.27	+ 67.22	26.94	3 33 15.18	- - -	B.
	45	Sun, 2d L. - - -	16.0	29.3	42.3	55.5	9.0	22.2	35.3	33 55.66	— 0.27	— 67.22	26.94	3 33 15.11	- - -	
17	46	12 Canum Venaticorum	40.7	57.3	13.3	29.2	45.6	1.7	17.9	48 29.39	+ 0.35	- - -	28.86	12 48 58.60	1.50	K.
	47†	Polaris, S. P. - -	1.0	--	--	55.0	53.5	53.0	--	4 55.62	— 53.04	- - -	.87	13 4 31.45	29.20	
	48	α Virginis - - - -	10.3	23.1	36.0	48.6	1.4	13.9	26.7	16 48.57	1.00	- - -	28.88	13 17 16.45	1.32	
	49	α Coronæ Borealis -	8.3	22.5	36.2	50.2	4.8	18.8	32.8	27 50.51	0.04	- - -	29.00	15 28 19.47	0.66	
	50	α Serpentis - - - -	45.8	58.3	10 8	23.4	35.9	48.8	1.2	36 23.46	0.58	- - -	29.01	15 36 51.89	0.99	
18	51	Polaris, S. P. - -	56.6	58.0	56.0	56.0	54 0	52.0	52.0	4 56.37	53.55	- - -	31.22	13 4 34.04	28.61	B.
	52†	α Virginis - - - -	8.2	21.0	33.5	46.0	59.0	11.5	24.4	16 46.23	— 1.00	- - -	+ 31.24	13 17 16.47	+ 1.32	

Date.	CLOCK. At 14h.	Hourly rate.	VALUE OF m.	n.	c.
	s.	s.	s.	s.	s.
May 9	s 18.01	l 0.038	— .779	+1.350	+ .031
11	20.16	.052			
14	24.86	.073			
15	26.18	.021			
16	27.55	.058			
17	28.92	.055			
18	s 31.29	l .078			

24. Unsteady.
47. At first, unsteady.
52. Unsteady; misty.

E.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
9.			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
18	1†	η Ursæ Majoris	6.3	25.0	45.0	4.5	24.0	43.0	3.0	41 4.40	+ 0 0.88	- - -	+ 31.27	13 41 36.55	+ 0.79	B.
	2	η Bootis	20.6	34.0	47.0	0.0	13.4	27.0	40.0	47 0.29	— 0.27	- - -	.28	13 47 31.30	1.23	
	3	α Bootis	37.0	50.3	3.8	17.0	30.3	43.5	57.0	8 16.99	0.26	- - -	.30	14 8 48.03	1.07	
	4	ε Bootis	12.4	25.5	40.0	54.0	8.0	22.1	36.3	37 54.04	0.03	- - -	.34	14 38 25.35	0.87	
	5	α^2 Libræ	25.0	37.8	51.0	4.0	16.8	29.8	42.8	42 3.89	1.12	- - -	.35	14 42 34.12	1.15	
	6	β Libræ	47.0	59.5	11.8	25.0	37.7	50.0	2.5	8 24.79	0.96	- - -	.38	15 8 55.21	1.13	
	7	α Coronæ Borealis	6.0	20.0	34.0	48.0	2.0	16.0	30.0	27 47.94	0.04	- - -	.41	15 28 19.31	0.69	
	8	α Serpentis	43.2	55.9	8.3	21.0	33.8	46.2	59.0	36 21.06	0.58	- - -	31.42	15 36 51.90	1.00	
	9	Venus, 2d L.	28.9	42.2	55.3	8.6	21.8	34.9	48.0	58 8.53	— 0.29	— 1.99	32.23	2 58 38.48	- - -	
19	10	α Aurigæ	5.0	23.2	41.0	59.1	16.8	34.7	52.7	4 58.93	+ 0.66	- - -	32.40	5 5 31.99	5.11	K.
	11	α Bootis	35.2	48.7	1.8	15.3	28.8	41.8	54.9	8 15.21	— 0.26	- - -	33.09	14 8 48.04	1.07	
	12	ε Bootis	9.8	24.1	37.9	52.2	6.2	20.4	34.5	37 52.16	0.03	- - -	.10	14 38 25.23	0.87	
	13	α^2 Libræ	23.3	36.2	49.0	2.2	15.4	28.2	41.3	42 2.23	1.12	- - -	.11	14 42 34.22	1.14	
	14	β Libræ	45.0	57.8	10.5	23.0	35.6	48.3	1.2	8 23.06	0.96	- - -	.11	15 8 55.21	1.12	
	15	α Coronæ Borealis	4.2	18.3	32.3	46.4	0.6	14.6	28.7	27 46.44	0.04	- - -	.12	15 28 19.52	0.68	
	16	α Serpentis	41.7	54.1	6.8	19.3	32.0	44.6	57.2	36 19.39	0.58	- - -	33.14	15 36 51.95	0.99	
23	17	Polaris, S. P.	51.5	50.0	49.5	49.0	49.0	46.5	45.5	4 48.71	53.55	- - -	40.84	13 4 36.00	25.06	
	18	α Virginis	58.6	11.2	23.9	36.7	49.4	2.1	14.8	16 36.67	1.00	- - -	.85	13 17 16.52	1.34	
	19	η Ursæ Majoris	--	--	--	--	14.2	33.9	53.4	41 33.83	38.10	- - -	.88	13 41 36.61	0.85	
	20	η Bootis	10.9	24.2	37.6	50.7	3.8	17.0	30.3	46 50.64	0.27	- - -	.88	13 47 31.25	1.25	
	21	α Bootis	27.5	40.9	54.3	7.6	20.9	34.2	47.3	8 7.53	0.26	- - -	.91	14 8 48.18	1.07	
	22	ε Bootis	1.9	16.1	30.2	44.4	58.4	12 5	26.8	37 44.33	0.03	- - -	.94	14 38 25.24	0.87	
	23	α^2 Libræ	15.5	28.4	41.2	54.3	7.1	20.3	33.2	41 54.29	1.12	- - -	.95	14 42 34.12	1.13	
	24	β Libræ	37.2	50.0	2.6	15.1	27.7	40.6	53.2	8 15.20	0.96	- - -	40.98	15 8 55.22	1.10	
	25	α Coronæ Borealis	56.4	10.5	24.2	38.6	52.9	6.8	20.9	27 38.61	0.04	- - -	41.00	15 28 19.57	0.66	
	26	α Serpentis	33.7	46.4	58.9	11.7	24.2	36.8	49.1	36 11.54	0.58	- - -	.01	15 36 51.97	0.95	
	27	β^1 Scorpii	--	--	--	--	--	29.0	42.0	56 35.50	34.38	- - -	.03	15 56 42.15	1.11	
	28	δ Ophiuchi	10.7	23.0	35.3	48.0	0.5	12.9	25.6	5 48.00	0.82	- - -	.05	16 6 28.23	1.04	
	29	α Herculis	--	40.9	53.9	6.9	19.8	32.8	45.8	7 13.35	6.86	- - -	41.12	17 7 47.61	0.77	
31	30	δ Virginis	26.9	39.6	52.0	4.3	16.9	29.6	42.3	47 4.51	0.65	- - -	57.57	12 48 1.43	1.60	
	31	Moon, 1st L.	22.9	35.4	48.3	1.2	13.8	26.3	39.5	4 1.06	0.87	+ 62.65	.58	13 6 0.02	- - -	
	32†	α Virginis	41.6	54 1	6.9	19.9	32.7	45.1	58.0	16 19.76	— 1.00	- - -	.58	13 17 16.34	1.39	
	33	h Virginis	28.6	41.2	--	--	--	--	44.4	23 58.07	+ 7.47	- - -	.58	13 25 3.12	1.36	
	34	α Serpentis	17.1	29.8	42.3	54.9	7.7	20.2	32.7	35 54.96	— 0.58	- - -	.61	15 36 51.99	0.92	
	35†	δ Ophiuchi	53 9	6.6	18.9	31.2	--	56.5	9.2	5 29.38	+ 1.27	- - -	57.61	16 6 28.26	0.96	
4	36	α Virginis	37.2	--	2.5	15.3	27.9	--	53.2	17 15.22	— 1.00	- - -	2.02	13 17 16.24	1.41	
	37	η Bootis	49.7	2.9	16.2	29.6	42.7	56.1	9.2	47 29.49	0.27	- - -	.03	13 47 31.25	1.32	
	38	α Bootis	6.6	19.7	32.9	--	59.4	12.8	26.2	8 46.27	0.26	- - -	.04	14 8 48.05	1.13	
	39	ε Bootis	40.9	54.8	9.0	23.4	37.3	51.7	5.7	38 23.26	0.03	- - -	.05	14 38 25.28	0.91	
	40	α^2 Libræ	54.2	7.2	20.3	33.2	46.2	59.1	12.2	42 33.20	1.12	- - -	.05	14 42 34.13	1.12	
	41	β Libræ	16.3	28.9	41.4	54.1	6.9	19.4	32.2	8 54.17	0.96	- - -	.06	15 8 55.27	1.07	
	42	β^1 Scorpii	1.6	14.8	28.1	41.3	54.6	7.9	21.1	56 41.34	1.22	- - -	.08	15 56 42.20	1.05	
	43	γ Scorpii	35.4	48.6	1.8	15.0	28.2	41.4	54.8	3 15.03	1.21	- - -	.08	16 3 15.90	1.04	
	44	Moon, 1st L.	10.0	23.4	36.7	50.2	3.5	16.7	30.3	19 50.11	1.19	63.49	.09	16 20 54.50	- - -	
	45	φ Ophiuchi	--	5.6	18.4	31.6	44.5	57.6	--	22 31.54	1.15	- - -	.09	16 22 32.48	1.03	
	46	20 Ophiuchi	52.2	4.8	17.5	30.4	43.0	55.6	8.4	41 30.27	1.00	- - -	2.10	16 41 31.37	0.99	
5	47	Sun, 1st L.	19.0	32.5	46.2	59.9	13.4	27.2	40.0	52 59.74	0.18	+ 68.55	3.18	4 54 11.29	- - -	B.
	48	Sun, 2d L.	36.2	50.0	3.4	17.0	30.4	44.0	57.6	55 16.94	— 0.18	— 68.55	.18	4 54 11.39	- - -	
	49	α Aurigæ	35.0	53.0	10.8	29.0	46.5	4.5	22.3	5 28.73	+ 0.66	- - -	.19	5 5 32.58	4.98	
	50	α Virginis	36.0	48.5	1.0	13.7	26 4	39.2	52.0	17 13.83	— 1.00	- - -	.41	13 17 16.24	1.42	
	51	η Bootis	48.2	1.8	14.8	28.1	41.1	54.5	8.0	47 28.07	0.27	- - -	.42	13 47 31.22	1 33	
	52	α Bootis	5.0	18.2	31.2	45.0	58.0	11.5	25.0	8 44.84	— 0 0.26	- - -	+ 3.43	14 8 48.01	+ 1.14	

1 to 9. Unsteady.
32. Observed through clouds.
35. After this observation set the clock forward one minute.

Date.		CLOCK. At 15h.	Hourly rate.	VALUE OF m.	n.	c.
		s	s.	s.	s.	s.
May	18	s. 31.37	l 0.078	— .779	+1.350	+ .031
	19	33.11	.022			
	23	40.97	.071			
	31	57.60	012			
June	4	2.06	.023			
	5	s. 3.45	l. .027			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1849.			s.	s.	s.	s.	s.	s.	s.	m. s	m. s.	s.	s.	h. m. s.	s.	
June 5	1†	ε Bootis	39.2	53.5	8.0	22.0	36.0	50.0	4.0	38 21.81	— 0.03	. . .	+ 3.44	14 38 25.22	+ 0.91	B.
	2	α² Libræ	52.8	5.5	18.5	32.0	45.2	58.0	11.0	42 31.86	1.12	. . .	3.45	14 42 34.19	1.13	
11	3†	α Bootis	57.0	10.0	23.2	36.4	50.0	3.0	16.3	8 36.56	0.26	. . .	11.63	14 8 47.93	1.16	
	4	ε Bootis	31.2	45.0	59.5	13.2	27.5	41.5	56.0	38 13.41	0.03	. . .	.63	14 38 25.01	0.93	
	5	α² Libræ	45.0	57.8	11.0	24.0	37.0	49.6	2.7	42 23.87	1.12	. . .	.63	14 42 34.38	1.12	
	6	β Libræ	7.0	19.4	32.0	44.5	57.2	10.0	22.8	8 44 70	0.96	. . .	.64	15 8 55.38	1.05	
	7	α Coronæ Borealis	25.5	40.0	53.8	8.2	22.0	36.0	49.8	28 7.90	0.04	. . .	.64	15 28 19.50	0.65	
	8	α Serpentis	3.3	16.0	28.5	41.0	53.5	6.2	19.0	36 41.07	0.58	. . .	.65	15 36 52.14	0.91	
	9	β¹ Scorpii	52.0	5.5	18.2	32.0	45.0	57.9	11.2	56 31.69	1.22	. . .	.65	15 56 42.12	1.01	
	10	δ Ophiuchi	40.0	52.5	5.0	17.4	30.0	42.6	55.0	6 17.50	— 0.82	. . .	11.65	16 6 28.33	+ 0.92	
16	11	β Ursæ Minoris	29.5	18.0	5.0	52.5	40.5	27.5	16.0	50 52.71	+ 4.30	. . .	17.53	14 51 14.54	— 2.32	
	12	β Libræ	0.5	13.2	26.0	38.8	51.5	4.0	16.8	8 38.69	— 0.96	. . .	.55	15 8 55.28	+ 1.08	
	13	α Coronæ Borealis	20.0	34.0	48.0	2.2	16.2	30.3	44.0	28 2.10	0.04	. . .	.57	15 28 19.62	0.67	
	14	α Serpentis	57.1	9.8	22.2	35.0	47.7	0.3	12.8	36 34.99	0.58	. . .	.57	15 36 51.98	0.91	
	15	δ Ophiuchi	34.0	46.4	59.0	11.5	24.0	36.5	49.0	6 11.49	0.82	. . .	.60	16 6 28.27	0.90	
	16	α Scorpii	14.2	28.0	42.0	56.0	9.5	23.5	37.5	19 55.81	1.40	. . .	.60	16 20 12.01	0.99	
	17	α Herculis	52 0	5.0	18.0	30.8	43.5	56.4	9.5	7 30.74	0.40	. . .	.64	17 7 47.98	0.53	
	18	α Ophiuchi	2.0	15.0	27.8	40.5	53.3	5.2	19.0	27 40.54	0.44	. . .	17.66	17 27 57.76	0.54	
18	19†	α Bootis	47.0	0.5	14.0	27.3	40.7	54.0	7.2	8 27.25	0.12	. . .	20.96	14 8 48.09	1.24	
	20	β Libræ	57.0	10.0	22.2	35.2	48.0	0.4	13.0	8 35.11	— 0.80	. . .	21.05	15 8 55.36	1.09	
	21	α Coronæ Borealis	16.0	30.2	44.3	58.4	12.2	26.4	40.7	27 58.31	+ 0.08	. . .	.07	15 28 19.46	0.68	
	22	α Serpentis	53.6	6.3	19.0	31.5	44.0	56.7	9.1	36 31.46	— 0.44	. . .	.09	15 36 52.11	0.92	
	23	α Ophiuchi	58.4	11.2	24.0	37.0	49.7	2.2	15.0	27 36.79	0.30	. . .	.23	17 27 57.72	0.53	
	24	μ¹ Sagittarii	46.0	59.3	12.5	26.2	39.6	53.0	6.2	4 26.11	— 1.10	. . .	.29	18 4 46.30	+ 0.99	
	25	δ Ursæ Minoris	4.5	35.0	4.5	36.0	8.0	38.5	10.0	20 36.64	+ 22.57	. . .	21.31	18 21 20.52	— 36.77	
20	26	ε Bootis	17.2	31.2	45.4	59.4	13.6	27.8	42.0	37 59.51	+ 0.10	. . .	25.43	14 38 25 04	+ 1.02	
	27	α² Libræ	30.5	43.8	56.5	9.4	22.4	35.5	48.5	42 9.51	— 0.96	. . .	.44	14 42 33.99	1.18	
	28	β Libræ	52.4	5.2	18.0	30.7	43.3	56.0	8.6	8 30.60	— 0.80	. . .	.47	15 8 55.27	1.09	
	29	α Coronæ Borealis	12.0	26.0	39.9	54.0	8.0	22.2	36.2	27 54.04	+ 0.08	. . .	.50	15 28 19.62	0.69	
	30	α Serpentis	49.2	1.8	14.4	27.0	39.4	52.0	4.7	36 26.93	— 0.44	. . .	.52	15 36 52.01	0.92	
	31	μ¹ Sagittarii	42.0	55.3	8.4	22.0	35.3	48.7	2.0	4 21.96	— 1.10	. . .	.75	18 4 46.61	+ 0.97	
	32	δ Ursæ Minoris	59.0	30.0	0.0	34.5	4.5	35.0	5.0	20 32.57	+ 22.57	. . .	25.77	18 21 20.91	— 36.66	
22	33	Sun, 1st L.	22.4	36.2	50.1	3.7	17.0	30.9	44.3	3 3.51	— 0.03	+ 68.89	29.09	6 4 41.46		
	34	Sun, 2d L.	40.4	54.1	7.4	21.3	35.0	48.5	2.2	5 21.27	— 0.03	— 68.89	.09	6 4 41.44		
	35	ε Bootis	12.8	27.0	41.0	55.2	9.3	23.2	37.3	37 55.11	+ 0.10	. . .	.88	14 38 25.09	+ 1.03	
	36	α² Libræ	26.3	39.3	52.2	5.2	18.0	31.1	44 0	42 5.16	— 0.96	. . .	.89	14 42 34.09	+ 1.17	
	37	β Ursæ Minoris	16.5	5.0	52.5	40.0	27.3	15.5	3.0	50 39.97	+ 4.41	. . .	.90	14 51 14.28	— 1.98	
	38	β Libræ	48.2	1.0	13.6	26.2	38.9	51 6	4.2	8 26.24	— 0.80	. . .	.93	15 8 55.37	+ 1.10	
	39	α Coronæ Borealis	7.4	21.3	35.2	49.3	3.3	17.5	31.7	27 49.39	+ 0.08	. . .	.96	15 28 19.43	0.70	
	40	α Serpentis	44.6	57.2	9.9	22.4	35.0	47.5	0.2	36 22.40	— 0.44	. . .	29.98	15 36 51.94	0.93	
26	41†	β¹ Scorpii	22.0	35.4	49.0	2.2	15.0	28.3	42.0	56 1.99	1.05	. . .	41.42	15 56 42.36	1.00	
	42	δ Ophiuchi	10.2	22.7	35.2	47.6	0.1	12.8	25.2	5 47.69	0.67	. . .	.45	16 6 28.47	0.90	
	43	α Scorpii	50.0	4.0	18.0	32.0	45.8	59.5	13.3	19 31.80	1.23	. . .	.47	16 20 12.04	0.97	
	44	μ¹ Sagittarii	26.0	30.3	52.8	6.0	19.3	33.0	46.3	4 6.10	1.10	. . .	.68	18 4 46.68	+ 0.91	
	45	δ Ursæ Minoris	44.0	14.0	43.5	15.0	46.5	17.0	47.0	20 15.29	+ 22.57	. . .	.70	18 21 19.56	— 36.38	
	46	β Lyræ	6.0	20.5	35.2	50.6	5.5	20.2	35.3	43 50.47	+ 0.27	. . .	41.75	18 44 32.49	— 0.23	
July 2	47	β Libræ	21.1	33.8	16.4	59.0	12.0	24.2	37.0	7 59.07	— 0.93	. . .	57.13	15 8 55.27	+ 1.15	
	48	α Coronæ Borealis	40.1	54.0	8.2	22.2	36.3	50.4	4.5	27 22 24	+ 0.04	. . .	.16	15 28 19.44	0.78	
	49	α Sepentis	17.4	30.3	42.8	55.2	8.0	20.4	32.9	35 55.29	— 0.53	. . .	.18	15 36 51.94	+ 0.97	
	50	ζ Ursæ Minoris	28.5	30.3	31.0	33.0	34.0	35.5	37.0	48 32.71	+ 6.54	. . .	.21	15 49 36.46	— 4.83	
	51	γ Scorpii	40.3	53.5	6.7	20.2	33.2	46.3	59.7	2 19.99	— 1.21	. . .	.23	16 3 16.01	+ 1.00	
	52	ψ Ophiuchi	43.1	56.5	9.8	22.8	36.0	49.4	3.0	14 22.94	— 1.22	. . .	+ 57.25	16 15 18.97	+ 0.97	

DATE.	CLOCK. At 16h.	Hourly rate.	VALUE OF m.	n.	c
	s	s.	s.	s.	s.
Jan. 5	s 3.48	l 0.027	— .779	+1.350	+ .031
11	11.65	.013			
16	17.59	.049			
18	21.12	.082	.674	1.306	.075
20	25.56	.092			
22	30.01	.093			
26	41.44	.115			
July 2	s 57.23	l .109	— .786	+1.445	+ .075

1, 2. Very unsteady.
3. Extremely unsteady through the night.
19. In commencing observations, found the collimation changed.
41. Unsteady through the night.

TE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
49.			s	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
2	1	α Scorpii - - - -	34.2	48.2	2.3	16.0	30.3	44.0	58.0	19 16.14	— 1.41	- - -	+ 57.26	16 20 11.99	+ 0.97	B.
	2	Moon, 1st L. - -	20.1	34.0	47.0	0.6	13.9	27.3	41.0	53 0.56	1.21	+ 63.90	.33	16 55 0.58	- - -	
	3	η Ophiuchi - - - -	10.3	23.3	36.5	49.7	2.7	15.4	28.5	0 49.49	1.11	- - -	.34	17 1 45.72	0.85	
	4	θ Ophiuchi - - - -	10.0	23.4	37 4	51.1	4.8	18.5	32.4	11 51.09	1.37	- - -	.36	17 12 47.08	0.90	
	5	α Ophiuchi - - - -	22.1	35.0	48.0	0.8	13.5	26.4	39.3	27 0.73	0.38	- - -	.38	17 27 57.73	0.47	
	6†	μ^1 Sagittarii - - - -	10.3	24.0	37.4	50.4	4.0	17.2	30.5	3 50.54	— 1.26	- - -	.45	18 4 46.73	+ 0.85	
	7†	δ Ursæ Minoris - -	26.0	56.0	25.0	58.0	29.0	0.0	30.0	19 57.71	+ 24.79	- - -	57.48	18 21 19.98	— 35.93	
5	8	α Coronæ Borealis -	32.1	46.3	0.4	14.5	28.4	42.7	56.8	27 14.46	— 0.04	- - -	65.04	15 28 19.46	+ 0.81	
	9	α Serpentis - - - -	9.8	22.5	35.0	47.4	0.1	12.6	25.4	35 47.54	— 0.64	- - -	.06	15 36 51.96	+ 0.99	
	10	ζ Ursæ Minoris - -	20.5	21.0	23.0	24.3	26.0	28.0	29.0	38 24.54	+ 6.47	- - -	.08	15 49 36.09	— 4.58	
	11	β^1 Scorpii - - - -	58.5	12.0	25.3	38.6	51.8	5.1	18.2	55 38.50	— 1.35	- - -	.09	15 56 42.24	+ 1.03	
	12	δ Ophiuchi - - - -	46.7	59.3	11.5	24.1	36.6	49.1	1.9	5 24.17	0.91	- - -	.11	16 6 28.37	0.93	
	13	α Scorpii - - - -	26.4	40.5	54.4	8.6	22.3	36.2	50.1	19 8.36	1.55	- - -	.14	16 20 11.95	0.98	
	14	α Herculis - - - -	4.1	17.1	30.3	43.0	56.2	9.0	22.0	6 43.10	0.43	- - -	.22	17 7 47.89	0.49	
	15	α Ophiuchi - - - -	14.7	27.5	40.3	53.2	6.0	18.7	31.4	26 53.11	0.48	- - -	.26	17 27 57.89	0.47	
	16	μ^1 Sagittarii - - -	2.4	15.9	29.4	42.6	56.1	9.3	23.0	3 42.67	— 1.40	- - -	.32	18 4 46.59	+ 0.83	
	17	δ Ursæ Minoris - -	15.5	47.0	18.0	50.0	20.0	50.5	22.0	19 49.00	+ 24.71	- - -	.36	18 21 19.07	— 35.50	
	18†	β Lyræ - - - - -	43.0	57.3	12.3	27.3	42.0	57.0	12.3	43 27.31	0.17	- - -	65.40	18 44 32.88	— 0.30	
10	19	12 Canum Venaticorum	54.0	10.3	26.3	42.5	58.5	14.7	30.8	47 42.44	+ 0.41	- - -	75.00	12 48 57.85	+ 2.34	
	20	Polaris S. P. - -	--	--	57.5	54.0	54.5	--	--	4 55.33	— 56.89	- - -	.01	13 5 13.45	— 11.78	
	21	η Ursæ Majoris - -	21.0	40.2	0.1	19.3	39.2	58.5	18.0	40 19.47	+ 0.96	- - -	.04	13 41 35.47	+ 1.78	
	22	α Herculis - - - -	54.2	7.3	20.5	33.0	46.0	59.0	12.0	6 33.11	— 0.40	- - -	.21	17 7 47.92	0.50	
	23	α Ophiuchi - - - -	5.0	17.5	30.2	43.0	55.8	8.5	21.4	26 43.06	— 0.45	- - -	.23	17 27 57.84	+ 0.46	
	24	γ Draconis - - - -	52.0	12.0	32.0	52.0	12.5	32.3	52.3	51 52.16	+ 1.05	- - -	.25	17 53 8.46	— 1.17	
	25	μ^1 Sagittarii - - -	52.3	6.0	19.4	33.0	46.3	59.5	13.0	3 32.79	— 1.32	- - -	.26	18 4 46.73	+ 0.80	
	26	δ Ursæ Minoris - -	6.0	37.5	8.5	38.5	9.5	41.0	12.0	19 39.00	+ 23.74	- - -	.27	18 21 18.01	— 34.82	
	27	α Aurigæ - - - -	22.3	40.3	58.2	16.1	34.1	--	--	3 58.20	18.68	- - -	.82	5 5 32.70	+ 4.20	
	28	β Tauri - - - - -	47.0	1.0	15.2	29.4	43.3	58.0	12.0	15 29.41	+ 0.01	- - -	.83	5 16 45.25	3.59	
	29	δ Orionis - - - -	25.1	37.5	50.1	2.5	15.2	27.4	40.2	23 2.57	— 0.78	- - -	.83	5 24 17.62	3.07	
	30	α Orionis - - - -	6.0	19.5	32.2	45.0	--	--	--	45 25.68	+ 18.35	- - -	75.85	5 46 59.88	3.24	
11	31	α Aurigæ - - - -	21.2	39.4	57.1	15.0	33.1	51.0	9.0	4 15.11	0.72	- - -	76.91	5 5 32.74	4.16	
	32	β Tauri - - - - -	45 6	0.0	14.2	28.4	42.4	56.5	11.0	15 28.30	+ 0.01	- - -	.92	5 16 45.23	3.56	
	33	δ Orionis - - - -	24.0	36.4	49.0	1.4	14.0	26.5	39.2	23 1.50	— 0.78	- - -	.92	5 24 17.64	3.05	
	34	ε Orionis - - - -	39.3	52.1	4.5	17.1	29.4	42.1	54.5	27 17.00	— 0.80	- - -	76.92	5 28 33.12	3.05	
12	35	α Aurigæ - - - -	20.1	38.0	56.0	14.0	31.4	50.0	8.0	4 13.93	+ 0.72	- - -	78.22	5 5 32.87	4.13	
	36	β Tauri - - - - -	44.4	58.5	12.7	27.0	41.2	55.5	9.7	15 27.00	+ 0.01	- - -	.23	5 16 45.24	3.54	
	37	δ Orionis - - - -	--	35.3	47.5	0.2	12.7	25.2	37.6	23 6.42	— 7.03	- - -	.24	5 29 17.63	3.03	
	38†	ε Orionis - - - -	38.2	50.6	3.1	15.6	28.3	40.8	53.2	27 15 69	0.80	- - -	+ 78.24	5 28 33.13	3.03	
13	39	Sun, 1st L. - - -	7.8	21.4	34.8	48.2	1.7	15.2	28.6	30 48.24	0.25	+ 68.08	— 41.60	7 31 14.47	- - -	
	40	Sun, 2d L. - - -	24.0	37.5	51.0	4.5	18.0	31.4	45.0	33 4.49	0.25	— 68.08	41.60	7 31 14.56	- - -	
	41	α Herculis - - - -	50.2	3.0	16.3	29.2	42.0	55.0	8.0	8 29.10	0.31	- - -	40.83	17 7 47.96	0.51	
	42	α Ophiuchi - - - -	0.8	13.3	26.2	39.1	52.0	4.8	17.3	28 39.07	— 0.36	- - -	.82	17 27 57.89	+ 0.47	
	43	γ Draconis - - - -	48.0	8.0	28.2	48.2	8.3	28.5	48.5	53 48.24	+ 0.99	- - -	.78	17 53 8.45	— 1.14	
	44	μ^1 Sagittarii - - -	48.4	1.8	15.2	28.5	42.0	55.4	9.0	5 28.61	— 1.15	- - -	.76	18 4 46.70	+ 0.80	
	45	δ Ursæ Minoris - -	5.0	36.0	6.5	37.0	9.0	39.0	9.5	21 37.43	+ 21.41	- - -	40.75	18 21 18.09	— 34.42	
16	46	β Orionis - - - -	10.8	23.5	36.1	48.8	1.4	14.0	26.6	7 48.74	— 1.09	- - -	30.63	5 7 17.02	+ 2.82	
	47	β Tauri - - - - -	33.3	47.5	1.7	16.0	30.3	44.4	58.5	17 15.96	0.02	- - -	.61	5 16 45.33	3.44	
	48	δ Orionis - - - -	11.6	24.3	36.5	48.9	1.5	14.2	27.0	24 49.14	0.87	- - -	.60	5 24 17.67	2.94	
	49	ε Orionis - - - -	--	--	52.2	5.0	17.3	30.0	42.3	29 17.36	13.41	- - -	30.59	5 28 33.36	2.95	
17	50	β Corvi - - - - -	19.9	33.3	46.6	0.2	14.0	27.3	41.0	27 0.33	1.57	- - -	29.86	12 26 28.96	+ 2.01	
	51	Polaris S. P. - -	52.0	54.0	52.0	49.0	48.0	46.5	47.0	6 49.79	61.05	- - -	.79	13 5 18.95	— 17.66	
	52	α Virginis - - - -	8.6	21.4	34.0	46.8	59.5	12.2	25.0	17 46.79	— 1.16	- - -	— 29.78	13 17 15.86	+ 1.85	

6. Unsteady.
7. Extremely unsteady.
18. Observation bad.
38. After this observation set the clock forward 2 minutes.

Date.	CLOCK. At 22h.	Hourly rate.	VALUE OF m.	n.	c.
	s.	s.	s.	s.	s.
July 2	s 57.88	l 0.109	— .786	+ 1.445	+ .075
5	s 65.77	.111	.835	1.505	.015
10	s 75.46	.050	.785	1.443	.015
11	s 76.56	.050			
12	s 77.75	.066			
13	f 40.45	.079	.666	1.296	.015
16	f 31.37	.104	— .879	+ 1.560	+ .015
17	f 28.97	l .093			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1849.			s.	s.	s.	s	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
July 17	1	η Bootis	21.2	34.3	47.5	0.7	14.0	27.2	40.5	48 0.77	— 0.32	- - -	— 29.73	13 47 30.72	+ 1.78	P.
	2	α Bootis	37.6	51.0	4.3	17.6	31.0	44.2	57.6	9 17.61	0.30	- - -	.70	14 8 47.61	1.58	
	3	ε Bootis	12.0	26.2	40.3	54.4	8.6	22.8	37.0	38 54.47	0.04	- - -	29.66	14 38 24.77	+ 1.36	
18	4	Polaris, S. P.	49.5	51.0	51.0	..	48.0	44.0	44.0	6 47.92	60.94	- - -	27.80	13 5 19.18	— 18.48	K.
	5	α Virginis	6.9	19.4	31.9	44.9	57.5	10.3	21.9	17 44.69	— 1.15	- - -	.78	13 17 15.76	+ 1.85	
	6	η Ursæ Majoris	3.7	23.3	42.8	2 2	21.8	41.3	0.8	42 2.27	+ 1.01	- - -	.75	13 41 35.53	1.99	
	7	η Bootis	19.1	32.4	45.6	58.8	12.2	25.3	38.7	47 58.87	— 0.32	- - -	.74	13 47 30.81	1.78	
	8	α Bootis	35.5	49.0	2.3	15.5	28.9	42.2	55.7	9 15.59	— 0.30	- - -	— 27.72	14 8 47.57	+ 1.60	
Aug. 6	9	Polaris, S. P.	33.0	34.0	33.0	31.0	..	..	..	53 32.75	+11 45.39	- - -	+ 11.64	13 5 29.78	— 32.40	B.
	10	α Bootis	55.0	8.3	21.6	35.0	48.1	1.5	14.9	8 34.91	0.56	- - -	11.73	14 8 47.20	+ 1.87	
	11	α² Geminorum	59.5	14.2	29.4	43.5	58.3	13.2	28.3	24 43.77	0.65	- - -	13.38	7 24 57.80	3.61	
7	12	α² Geminorum	57.0	12.2	26.4	41.2	56.1	10.9	25.8	24 41.37	0.65	- - -	15.65	7 24 57.67	3.59	
	13	α Canis Minoris	30.1	42.6	55.3	7.8	20.3	33.0	45.6	31 7.81	0.47	- - -	.66	7 31 23.94	2.91	
	14	β Geminorum	5.3	19.4	33.7	48.0	2.3	16.4	30.5	35 47.94	0.62	- - -	15.67	7 36 4.23	3.48	
16	15	μ¹ Sagittarii	31.3	44.7	58.0	11.6	25.0	38.3	51.5	4 11.49	0.30	- - -	34.70	18 4 46.49	+ 0.96	
	16	δ Ursæ Minoris	55.0	26.5	57.0	27.0	59.0	31.0	1.5	20 28.14	6.38	- - -	.73	18 21 9.25	— 25.70	
	17	β Lyræ	12.3	27.3	42.2	57.3	12.3	27.0	42.0	43 57.20	0.66	- - -	.76	18 44 32.62	— 0.12	
	18†	ξ Aquilæ	16.5	29.5	42.3	55.2	7.8	21.0	33.5	57 55.11	0.52	- - -	.79	18 58 30.42	+ 0.30	
	19	δ Aquilæ	43.0	55.3	7.8	20.3	33.0	45.4	58.0	17 20.40	0.45	- - -	.82	19 17 55.67	0.43	
	20	γ Aquilæ	53.8	6.5	19.0	31.8	45.0	57.6	10.2	38 31.99	0.49	- - -	.86	19 39 7.34	0.26	
	21	α Aquilæ	14.3	27.0	39.7	52.2	5.0	17.5	30.2	42 52.27	0.48	- - -	.86	19 43 27.61	0.29	
	22	β Aquilæ	43.3	55.7	8.4	21.0	33.3	46.2	58.9	47 20.97	0.47	- - -	34.87	19 47 56.31	0.29	
	23	α² Geminorum	37.0	51.6	6.3	21.3	36.0	50.5	5.5	24 21.17	0.65	- - -	36.00	7 24 57.82	3.38	
	24	α Canis Minoris	10.0	22.5	35.0	47.4	0.0	12.7	25.2	30 47.54	0.47	- - -	.01	7 31 24.02	2.76	
	25	β Geminorum	45.3	59.5	13.6	28.0	42.0	56.4	10.5	35 27.90	0.62	- - -	36.02	7 36 4.54	3.28	
24	26	δ Aquilæ	29.0	41.5	54.3	6.6	19.2	31.6	44.2	17 6.63	0.45	- - -	48.47	19 17 55.55	0.53	
	27	γ Aquilæ	40.2	53.0	5.5	18.4	31.0	43.5	56.2	38 18.26	0.49	- - -	.50	19 39 7.25	0.33	
	28	α Aquilæ	0.5	13.3	26.0	38.4	51.0	3.6	16.2	42 38.43	0.48	- - -	.50	19 43 27.41	0.36	
	29	β Aquilæ	29.8	42.2	54.8	7.3	20.0	32.3	45.0	47 7.34	0.47	- - -	.51	19 47 56.32	0.36	
	30	α² Capricorni	15.3	28.5	41.2	54.2	7.0	20.0	32.7	8 54.13	0.36	- - -	48.54	20 9 43.03	0.57	
27	31	Sun, 1st L.	56.0	8.5	21.3	34.1	46.8	59.5	12.2	22 34.06	0.49	+ 64.59	53.40	10 24 32.54	- - -	
	32	Sun, 2d L.	5.2	17.7	30.3	43.2	56.0	8.5	21.3	24 43.17	0.49	— 64.59	.40	10 24 32.47	- - -	
	33	Mercury, 1st L.	53.2	6.2	18.3	31.4	44.2	56.8	9.3	4 31.34	0.48	+ 0.16	.45	11 5 25.43	- - -	
	34	α Scorpii	35.5	49.4	3.3	17.3	31.2	45.2	59.1	19 17.29	0.27	- - -	.82	16 20 11.38	1.63	
	35	α Herculis	14.3	27.3	40.2	53.1	6.0	19.0	31.9	6 53.11	0.52	- - -	.88	17 7 47.51	1.05	
	36	θ Ophiuchi	11.0	25.0	38.7	52.3	6.2	20.0	33.8	11 52.43	0.28	- - -	.89	17 12 46.60	1.37	
	37	α Ophiuchi	24.4	37.1	50.0	3.0	16.0	28.7	41.3	27 2.93	0.51	- - -	.91	17 27 57.35	0.95	
	38	58 Ophiuchi	50.6	3.9	17.4	31.0	44.3	58.0	11.3	33 30.93	0.30	- - -	.92	17 34 25.15	+ 1.26	
	39	γ Draconis	12.4	32.5	53.0	13.0	33.0	53.3	13.3	52 12.93	0.87	- - -	.94	17 53 7.74	— 0.18	
	40	Moon, 1st L.	15.1	28.8	42.5	56.0	9.5	23.1	36.5	57 55.93	0.32	+ 64.67	.94	17 59 54.86	- - -	
	41	μ¹ Sagittarii	12.0	25.4	38.7	52.2	5.5	19.0	32.4	3 52.17	0.30	- - -	.95	18 4 46.42	+ 1.12	
	42	λ Sagittarii	5.8	19.5	33.3	47.3	1.2	15.0	29.0	17 47.30	0.27	- - -	.97	18 18 41.54	1.10	
	43†	α Lyræ	9.0	24.5	40.2	56.2	12.5	28.5	45.0	30 56.56	0.71	- - -	.98	18 31 51.25	0.00	
	44	β Lyræ	53.0	8.0	22.8	37.7	52.6	7.5	22.4	43 37.71	0.66	- - -	53.99	18 44 32.36	0.08	
	45	ζ Aquilæ	57.2	10.1	23.0	36.0	49.0	1.5	14.6	57 35.91	0.52	- - -	54.02	18 58 30.45	+ 0.44	
Sept. 7	46	Sun, 1st L.	33.4	46.2	58.7	11.2	24.0	36.4	49.2	2 11.30	0.47	+ 64.13	69.56	11 4 25.46	- - -	
	47	Sun, 2d L.	41.6	54.2	7.0	19.3	32.2	44.5	57.3	4 19.44	0.47	— 64.13	58	11 4 25.36	- - -	
	48	Polaris, S. P.	50.5	52.0	52.0	51.5	..	..	..	52 51.50	11 46.37	- - -	.85	13 5 47.72	— 51.29	
	49	η Bootis	40.0	53.3	6.3	19.5	32.7	46.0	59.3	46 19.59	0.55	- - -	.94	13 47 30.08	+ 2.49	
	50	α Bootis	55.4	10.0	23.0	36.0	49.5	3.0	16.0	7 36.27	0.56	- - -	69.99	14 8 46.82	2.36	
	51	α Lyræ	52.3	8.0	24.3	40.0	56.0	12.0	28.0	30 40.09	0.71	- - -	70.58	18 31 51.38	0.26	
	52	β Lyræ	36.2	51.0	6.0	21.0	35.8	50.8	6.0	43 20.97	+ 0.66	- - -	+ 70.61	18 44 32.24	+ 0.31	

Date.	CLOCK. At 20h.		Hourly rate.	VALUE OF— m.	n.	c.
		s	s.	s.	s.	s.
July 17	f	29.15	l 0.093	— .879	+ 1.560	+ .015
18	f	27.23	.088	- - -	- - -	- - -
Aug. 6	s	12.29	.095	+ .419	+ .339	+ .015
7		14.57	.095			
16		34.89	.098			
24		48.52	.077			
27		54.09	.072			
Sept. 7	s	70.79	l .136			

July 19. At 8h. 15m. S T., moved east end of axis north 24".45.
19. Unsteady; observation bad.
43. Badly defined; observation of little weight.

E.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
9.			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
7	1	ζ Aquilæ - - - -	40.5	53.3	6.2	19.0	32.0	44.7	57.7	57 19.06	+ 0.52	- - -	+ 70.65	18 58 30.23	+ 0.62	B.
	2	δ Aquilæ - - - -	56.6	19.2	31.5	44.2	57.0	9.3	21.9	16 44.24	0.45	- - -	.69	19 17 55.38	0.69	
	3	γ Aquilæ - - - -	18.0	30.5	43.5	56.0	8.5	21.2	34.0	37 55.93	0.49	- - -	.75	19 39 7.17	0.48	
	4	α Aquilæ - - - -	38.0	50.7	3.4	16.0	28.7	41.1	54.0	42 15.99	0.48	- - -	.75	19 43 27.22	0.50	
	5	β Aquilæ - - - -	7.1	19.8	32.3	45.0	57.4	10.2	22.5	46 44.90	0.47	- - -	70.76	19 47 56.13	0.51	
	6	α Aquarii - - - -	15.3	28.0	40.3	52.8	5.5	17.8	30.4	56 52.87	0.43	- - -	71.05	21 58 4.35	+ 0.26	
	7	Neptune - - - -	20.4	33.4	46.0	59.0	11.7	24.3	37.0	19 58.83	0.37	- - -	71.10	22 21 10.30	- - -	
10	8	Polaris, S. P. - -	46.0	48.0	49.0	49.0	47.0	--	--	56 47.80	7 46.68	- - -	79.06	13 5 53.54	— 52.82	K.
	9	α Virginis - - - -	17.7	30.4	43.1	55.9	8.5	21.4	34.0	15 55.86	0.37	- - -	.08	13 17 15.31	+ 2.46	
	10	δ Aquilæ - - - -	57.7	10.2	22.6	35.1	47.7	10.2	12.5	16 35.14	0.45	- - -	.71	19 17 55.30	0.73	
	11	γ Aquilæ - - - -	8.7	21.3	34.2	46.8	59.5	12.1	25.2	37 46.83	0.49	- - -	.74	19 39 7.06	0.51	
	12	α Aquilæ - - - -	29.3	41.9	54.3	6.9	19.8	32.2	44.7	42 7 01	0.48	- - -	.75	19 43 27.24	0.53	
	13	β Aquilæ - - - -	58.2	10.4	23.2	36.0	48.2	0.8	13.5	46 35.76	0.47	- - -	.76	19 47 55.99	0.54	
	14	α² Capricorni - - -	44.2	57.2	9.8	22.7	35.5	48.4	1.2	8 22.71	0.36	- - -	.80	20 9 42.87	+ 0.71	
	15	α Cygni - - - - -	--	24.1	41.5	59.4	16.8	34.5	--	34 59.26	0.78	- - -	.84	20 26 19.88	— 0.76	
	16	61¹Cygni - - - - -	2.8	18.5	34.7	50.4	6.1	22.2	38.2	58 50.41	0.70	- - -	.88	21 0 10.99	0.44	
	17	ζ Cygni - - - - -	29.9	44.4	58.6	13.1	27.5	41.8	56.2	5 13.09	0.63	- - -	.90	21 6 33.62	— 0.26	
	18	β Aquarii - - - -	41.2	53.7	6.1	18.8	31.3	44.0	56.7	22 18.83	0.40	- - -	.93	21 23 39.16	+ 0.38	
	19	ε Pegasi - - - -	50.5	-.9	15.7	28.4	41.1	53.7	6.3	35 28.37	0.49	- - -	79.95	21 36 48.81	0.14	
	20	Neptune - - - -	53.8	6.2	19.2	31.9	44.6	57.4	10.2	19 31.90	0.37	- - -	80.02	22 20 52.29	- - -	
11	21†	Sun, 1st L. - - -	45.4	58.2	10.5	23.0	35.6	48.3	1.0	16 23.14	0.46	+ 64.04	81.73	11 18 49.37	- - -	B.
	22	Sun, 2d L. - - -	53.4	6.2	18.5	31.0	44.0	56.3	9.0	18 31.20	0.46	— 64.04	.73	11 18 49.35	- - -	
	23	γ Ursæ Majoris - -	23.4	45.0	6.2	28.0	49.4	11.0	32.3	44 27.90	0.92	- - -	.77	11 45 50.59	4.32	
	24	Mercury, 1st L. -	30.2	43.0	55.5	8.0	20.6	33.3	46.0	31 8.09	0.41	+ 0.17	.87	12 32 30.54	- - -	
	25	α Virginis - - - -	15.0	27.3	40.2	53.0	5.5	18.2	31.2	15 52.91	0.37	- - -	81.96	13 17 15.24	2.46	
	26	α Lyræ - - - - -	40.0	56.2	12.2	28.0	44.0	0.0	16.0	30 28.06	0.71	- - -	82.54	18 31 51.31	0.33	
	27	ζ Aquilæ - - - -	28.4	41.4	54.2	7.0	20.0	33.2	45.7	57 7.13	0.52	- - -	.60	18 58 30.25	0.66	
	28	δ Aquilæ - - - -	54.5	7.2	19.5	32.0	44.6	57.2	0.0	16 32.14	0.45	- - -	.63	19 17 55.22	0.74	
	29	γ Aquilæ - - - -	6.0	18.8	31.3	44.0	56.8	9.3	22.0	37 44.03	0.49	- - -	.68	19 39 7.20	0.52	
	30	α Aquilæ - - - -	26.0	39.0	51.3	4.0	16.5	29.3	42.0	42 4.01	0.48	- - -	.68	19 43 27.17	0.55	
	31	β Aquilæ - - - -	55.2	8.0	20.3	32.8	45.5	58.0	10.5	46 32.90	0.47	- - -	.69	19 47 56.06	0.55	
	32	α² Capricorni - - -	41.3	54.0	7.0	19.9	32.7	45.5	8.4	8 19.83	0.36	- - -	.72	20 9 42 91	+ 0.70	
	33	α Cygni - - - - -	3.5	21.0	38.5	56.0	13.6	31.3	49.2	34 56.17	0.78	- - -	.78	20 36 19.73	— 0.74	
	34	61¹Cygni - - - - -	0.0	16.0	31.5	47.3	3.2	19.4	35.3	58 47.53	0.70	- - -	.83	21 0 11.06	0.43	
	35	ζ Cygni - - - - -	26.8	41.0	55.4	10.1	24.4	39.0	53.3	5 10.00	0.63	- - -	.84	21 6 33.47	0.27	
	36†	α Cephei - - - -	18.3	45.0	11.5	38.0	5.0	32.0	58.0	13 38.26	1.09	- - -	.85	21 15 2.20	— 2.39	
	37	β Aquarii - - - -	38.0	50.5	3.2	16.0	28.5	41.0	53.7	22 15.84	0.40	- - -	.87	21 23 39.11	+ 0.38	
	38	ε Pegasi - - - - -	47.3	0.3	12.9	25.7	38.2	51.0	3.5	35 25.56	0.49	- - -	.89	21 36 48.94	0.14	
	39	Metis - - - - -	16.3	30.0	43.2	57.0	10.2	24.0	37.4	59 56.87	+ 0.30	- - -	.94	22 1 20.11	- - -	
	40	Dec. — 21° 58′ -	--	--	5.0	18.5	32.0	45.4	59.0	1 31.98	— 13.19	- - -	.94	22 2 41.73	0.43	
	41	Neptune - - -	45.0	57.5	10.2	23.0	35.6	48.4	1.2	19 22.99	+ 0.37	- - -	82.97	22 20 46.33	- - -	
	42	ζ Pegasi - - - - -	--	--	22.3	35.3	48.0	0.8	13.3	32 47 94	— 12.22	- - -	83.00	22 33 58.72	0.04	
13	43†	β Lyræ - - - - -	19.8	34.3	49.5	4.6	19.5	34.2	49.2	43 4.44	+ 0.66	- - -	86.93	18 44 32.03	0.40	
	44	ζ Aquilæ - - - -	--	--	50.0	2.6	15.3	28.7	41.3	57 15.58	— 12.36	- - -	.96	18 58 30.18	0.69	
	45	δ Aquilæ - - - -	50.2	3.0	15.3	28.0	40.3	53.0	5.5	16 27.90	+ 0.45	- - -	86.99	19 17 55.34	0.75	
	46	γ Aquilæ - - - -	1.2	14.0	27.0	39.7	52.3	5.0	17.5	37 39.53	0.49	- - -	87.02	19 39 7.04	0.55	
	47	α Aquilæ - - - -	22.0	34.3	47.0	59.7	12.3	25.0	37.5	41 59.69	0.48	- - -	.04	19 43 27.21	0.57	
	48	β Aquilæ - - - -	51.0	3.3	15.8	28.6	41.1	53.8	6.3	46 28.56	0.47	- - -	.05	19 47 56.08	+ 0.58	
	49	α Cygni - - - - -	59.0	16.6	34.2	52.0	19.2	27.0	45.0	34 51.86	0.78	- - -	.13	20 36 19.77	— 0.71	
	50†	61¹Cygni - - - - -	55.5	11.5	27.7	43.2	59.0	15.3	31.4	58 43.37	0.70	- - -	.18	21 0 11.25	0.42	
	51	ζ Cygni - - - - -	21.5	36.5	51.0	5.5	20.0	34.3	48.5	5 5.33	0.63	- - -	.19	21 6 33 15	— 0.25	
	52	β Aquarii - - - -	33.7	46.3	58.8	11.4	24.0	36.5	49.3	22 11.43	+ 0.40	- - -	+ 87.22	21 23 39.05	+ 0.39	

21 to 25, 33 34. Unsteady.
36. Very unsteady,
39 Observation of little weight.
43 to 40. Unsteady.
50 51. Very unsteady.

Date.	CLOCK. At 20h.	Hourly rate.	VALUE OF m.	n.	c.
	s.	s.	s.	s.	s.
Sept. 7	s 70.79	l .136	+ .419	+ .339	+ .015
10	79.78	.104			
11	82.71	.113			
13	s 87.07	l .109			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1849.			s.	s.	s.	s	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
July 17	1	η Bootis - - - - -	21.2	34.3	47.5	0.7	14.0	27.2	40.5	48 0.77	— 0.32	- - -	— 29.73	13 47 30.72	+ 1.78	P.
	2	α Bootis - - - - -	37.6	51.0	4.3	17.6	31.0	44.2	57.6	9 17.61	0.30	- - -	.70	14 8 47.61	1.58	
	3	ε Bootis - - - - -	12.0	26.2	40.3	54.4	8.6	22.8	37.0	38 54.47	0.04	- - -	29.66	14 38 24.77	+ 1.36	
18	4	Polaris, S. P. - -	49.5	51.0	51.0	--	48.0	44.0	44.0	6 47.92	60.94	- - -	27.80	13 5 19.18	— 18.48	K.
	5	α Virginis - - - -	6.9	19.4	31.9	44.9	57.5	10.3	21.9	17 44.69	— 1.15	- - -	.78	13 17 15.76	+ 1.85	
	6	η Ursæ Majoris - -	3.7	23.3	42.8	2.2	21.8	41.3	0.8	42 2.27	+ 1.01	- - -	.75	13 41 35.53	1.99	
	7	η Bootis - - - - -	19.1	32.4	45.6	58.8	12.2	25.3	38.7	47 58.87	— 0.32	- - -	.74	13 47 30.81	1.78	
	8	α Bootis - - - - -	35.5	49.0	2.3	15.5	28.9	42.2	55.7	9 15.59	— 0.30	- - -	— 27.72	14 8 47.57	+ 1.60	
Aug. 6	9	Polaris, S. P. - -	33.0	34.0	33.0	31.0	--	--	--	53 32.75	+11 45.39	- - -	+ 11.64	13 5 29.78	— 32.40	B.
	10	α Bootis - - - - -	55.0	8.3	21.6	35.0	48.1	1.5	14.9	8 34.91	0.56	- - -	11.73	14 8 47.20	+ 1.87	
	11	α^2 Geminorum - - -	59.5	14.2	29.4	43.5	58.3	13.2	28.3	24 43.77	0.65	- - -	13.38	7 24 57.80	3.61	
7	12	α^2 Geminorum - - -	57.0	12.2	26.4	41.2	56.1	10.9	25.8	24 41.37	0.65	- - -	15.65	7 24 57.67	3.59	
	13	α Canis Minoris - -	30.1	42.6	55.3	7.8	20.3	33.0	45.6	31 7.81	0.47	- - -	.66	7 31 23.94	2.91	
	14	β Geminorum - - -	5.3	19.4	33.7	48.0	2.3	16.4	30.5	35 47.94	0.62	- - -	15.67	7 36 4.23	3.48	
16	15	μ^1 Sagittarii - - - -	31.3	44.7	58.0	11.6	25.0	38.3	51.5	4 11.49	0.30	- - -	34.70	18 4 46.49	+ 0.96	
	16	δ Ursæ Minoris - -	55.0	26.5	57.0	27.0	59.0	31.0	1.5	20 28.14	6.38	- - -	.73	18 21 9.25	— 25.70	
	17	β Lyræ - - - - -	12.3	27.3	42.2	57.3	12.3	27.0	42.0	43 57.20	0.66	- - -	.76	18 44 32.62	— 0.12	
	18†	ξ Aquilæ - - - -	16.5	29.5	42.3	55.2	7.8	21.0	33.5	57 55.11	0.52	- - -	.79	18 58 30.42	+ 0.30	
	19	δ Aquilæ - - - -	43.0	55.3	7.8	20.3	33.0	45.4	58.0	17 20.40	0.45	- - -	.82	19 17 55.67	0.43	
	20	γ Aquilæ - - - -	53.8	6.5	19.0	31.8	45.0	57.6	10.2	38 31.99	0.49	- - -	.86	19 39 7.34	0.26	
	21	α Aquilæ - - - -	14.3	27.0	39.7	52.2	5.0	17.5	30.2	42 52.27	0.48	- - -	.86	19 43 27.61	0.29	
	22	β Aquilæ - - - -	43.3	55.7	8.4	21.0	33.3	46.2	58.9	47 20.97	0.47	- - -	34.87	19 47 56.31	0.29	
	23	α^2 Geminorum - - -	37.0	51.6	6.3	21.3	36.0	50.5	5.5	24 21.17	0.65	- - -	36.00	7 24 57.82	3.38	
	24	α Canis Minoris - -	10.0	22.5	35.0	47.4	0.0	12.7	25.2	30 47.54	0.47	- - -	.01	7 31 24.02	2.76	
	25	β Geminorum - - -	45.3	59.5	13.6	28.0	42.0	56.4	10.5	35 27.90	0.62	- - -	36.02	7 36 4.54	3.28	
24	26	δ Aquilæ - - - -	29.0	41.5	54.3	6.6	19.2	31.6	44.2	17 6.63	0.45	- - -	48.47	19 17 55.55	0.53	
	27	γ Aquilæ - - - -	40.2	53.0	5.5	18.4	31.0	43.5	56.2	38 18.26	0.49	- - -	.50	19 39 7.25	0.33	
	28	α Aquilæ - - - -	0.5	13.3	26.0	38.4	51.0	3.6	16.2	42 38.43	0.48	- - -	.50	19 43 27.41	0.36	
	29	β Aquilæ - - - -	29.8	42.2	54.8	7.3	20.0	32.3	45.0	47 7.34	0.47	- - -	.51	19 47 56.32	0.36	
	30	α^2 Capricorni - - -	15.3	28.5	41.2	54.2	7.0	20.0	32.7	8 54.13	0.36	- - -	48.54	20 9 43.03	0.57	
27	31	Sun, 1st L. - - -	56.0	8.5	21.3	34.1	46.8	59.5	12.2	22 34.06	0.49	+ 64.59	53.40	10 24 32.54	- - -	
	32	Sun, 2d L. - - -	5.2	17.7	30.3	43.2	56.0	8.5	21.3	24 43.17	0.49	— 64.59	.40	10 24 32.47	- - -	
	33	Mercury, 1st L. -	53.2	6.2	18.3	31.4	44.2	56.8	9.3	4 31.34	0.48	+ 0.16	.45	11 5 25.43	- - -	
	34	α Scorpii - - - -	35.5	49.4	3.3	17.3	31.2	45.2	59.1	19 17.29	0.27	- - -	.82	16 20 11.38	1.63	
	35	α Herculis - - - -	14.3	27.3	40.2	53.1	6.0	19.0	31.9	6 53.11	0.52	- - -	.88	17 7 47.51	1.05	
	36	θ Ophiuchi - - - -	11.0	25.0	38.7	52.3	6.2	20.0	33.8	11 52.43	0.28	- - -	.89	17 12 46.60	1.37	
	37	α Ophiuchi - - - -	24.4	37.1	50.0	3.0	16.0	28.7	41.3	27 2.93	0.51	- - -	.91	17 27 57.35	0.95	
	38	58 Ophiuchi - - - -	50.6	3.9	17.4	31.0	44.3	58.0	11.3	33 30.93	0.30	- - -	.92	17 34 25.15	+ 1.26	
	39	γ Draconis - - - -	12.4	32.5	53.0	13.0	33.0	53.3	13.3	52 12.93	0.87	- - -	.94	17 53 7.74	— 0.18	
	40	Moon, 1st L. - -	15.1	28.8	42.5	56.0	9.5	23.1	36.5	57 55.93	0.32	+ 64.67	.94	17 59 54.86	- - -	
	41	μ^1 Sagittarii - - -	12.0	25.4	38.7	52.2	5.5	19.0	32.4	3 52.17	0.30	- - -	.95	18 4 46.42	+ 1.12	
	42	λ Sagittarii - - -	5.8	19.5	33.3	47.3	1.2	15.0	29.0	17 47.30	0.27	- - -	.97	18 18 41.54	1.10	
	43†	α Lyræ - - - - -	9.0	24.5	40.2	56.2	12.5	28.5	45.0	30 56.56	0.71	- - -	.98	18 31 51.25	0.00	
	44	β Lyræ - - - - -	53.0	8.0	22.8	37.7	52.6	7.5	22.4	43 37.71	0.66	- - -	53.99	18 44 32.36	0.08	
	45	ζ Aquilæ - - - -	57.2	10.1	23.0	36.0	49.0	1.5	14.6	57 35.91	0.52	- - -	54.02	18 58 30.45	+ 0.44	
Sept. 7	46	Sun, 1st L. - - -	33.4	46.2	58.7	11.2	24.0	36.4	49.2	2 11.30	0.47	+ 64.13	69.56	11 4 25.46	- - -	
	47	Sun, 2d L. - - -	41.6	54.2	7.0	19.3	32.2	44.5	57.3	4 19.44	0.47	— 64.13	58	11 4 25.36	- - -	
	48	Polaris, S. P. - -	50.5	52.0	52.0	51.5	--	--	--	52 51.50	11 46.37	- - -	.85	13 5 47.72	— 51.29	
	49	η Bootis - - - -	40.0	53.3	6.3	19.5	32.7	46.0	59.3	46 19.59	0.55	- - -	.94	13 47 30.08	+ 2.49	
	50	α Bootis - - - -	55.4	10.0	23.0	36.0	49.5	3.0	16.0	7 36.27	0.56	- - -	69.99	14 8 46.82	2.36	
	51	α Lyræ - - - - -	52.3	8.0	24.3	40.0	56.0	12.0	28.0	30 40.09	0.71	- - -	70.58	18 31 51.38	0.26	
	52	β Lyræ - - - - -	36.2	51.0	6.0	21.0	35.8	50.8	6.0	43 20.97	+ 0.66	- - -	+ 70.61	18 44 32.24	+ 0.31	

Date.	CLOCK. At 20h.	Hourly rate.	VALUE OF— m.	n.	c.
	s	s.	s.	s.	s.
July 17	f 29.15	l 0.093	— .879	+ 1.560	+ .015
18	f 27.23	.088	- - -	- - -	- - -
Aug. 6	s 12.29	.095	+ .419	+ .339	+ .015
7	14.57	.095			
16	34.89	.098			
24	48.52	.077			
27	54.09	.072			
Sept. 7	s 70.79	l .136			

July 19. At 8h. 15m. S T., moved east end of axis north 24".45.
19. Unsteady; observation bad.
43. Badly defined; observation of little weight.

TE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
19.			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
7	1	ζ Aquilæ - - - -	40.5	53.3	6.2	19.0	32.0	44.7	57.7	57 19.06	+ 0.52	- - -	+ 70.65	18 58 30.23	+ 0.62	B.
	2	δ Aquilæ - - - -	56.6	19.2	31.5	44.2	57.0	9.3	21.9	16 44.24	0.45	- - -	.69	19 17 55.38	0.69	
	3	γ Aquilæ - - - -	18.0	30.5	43.5	56.0	8.5	21.2	34.0	37 55.93	0.49	- - -	.75	19 39 7.17	0.48	
	4	α Aquilæ - - - -	38.0	50.7	3.4	16.0	28.7	41.1	54.0	42 15.99	0.48	- - -	.75	19 43 27.22	0.50	
	5	β Aquilæ - - - -	7.1	19.8	32.3	45.0	57.4	10.2	22.5	46 44.90	0.47	- - -	70.76	19 47 56.13	0.51	
	6	α Aquarii - - - -	15.3	28.0	40.3	52.8	5.5	17.8	30.4	56 52.87	0.43	- - -	71.05	21 58 4.35	+ 0.26	
	7	Neptune - - - -	20.4	33.4	46.0	59.0	11.7	24.3	37.0	19 58.83	0.37	- - -	71.10	22 21 10.30	- - -	
10	8	Polaris, S. P. - -	46.0	48.0	49.0	49.0	47.0	--	--	56 47.80	7 46.68	- - -	79.06	13 5 53.54	— 52.82	K.
	9	α Virginis - - - -	17.7	30.4	43.1	55.9	8.5	21.4	34.0	15 55.86	0.37	- - -	.08	13 17 15.31	+ 2.46	
	10	δ Aquilæ - - - -	57.7	10.2	22.6	35.1	47.7	10.2	12.5	16 35.14	0.45	- - -	.71	19 17 55.30	0.73	
	11	γ Aquilæ - - - -	8.7	21.3	34.2	46.8	59.5	12.1	25.2	37 46.83	0.49	- - -	.74	19 39 7.06	0.51	
	12	α Aquilæ - - - -	29.3	41.9	54.3	6.9	19.8	32.2	44.7	42 7 01	0.48	- - -	.75	19 43 27.24	0.53	
	13	β Aquilæ - - - -	58.2	10.4	23.2	36.0	48.2	0.8	13.5	46 35.76	0.47	- - -	.76	19 47 55.99	0.54	
	14	α² Capricorni - - -	44.2	57.2	9.8	22.7	35.5	48.4	1.2	8 22.71	0.36	- - -	.80	20 9 42.87	+ 0.71	
	15	α Cygni - - - - -	--	24.1	41.5	59.4	16.8	34.5	--	34 59.26	0.78	- - -	.84	20 26 19.88	— 0.76	
	16	61¹Cygni - - - - -	2.8	18.5	34.7	50.4	6.1	22.2	38.2	58 50.41	0.70	- - -	.88	21 0 10.99	0.44	
	17	ζ Cygni - - - - -	29.9	44.4	58.6	13.1	27.5	41.9	56.2	5 13.09	0.63	- - -	.90	21 6 33.62	— 0.26	
	18	β Aquarii - - - -	41.2	53.7	6.1	18.8	31.3	44.0	56.7	22 18.83	0.40	- - -	.93	21 23 39.16	+ 0.38	
	19	ε Pegasi - - - -	50.5	4.9	15.7	28.4	41.1	53.7	6.3	35 28.37	0.49	- - -	79.95	21 36 48.81	0.14	
	20	Neptune - - - -	53.8	6.2	19.2	31.9	44.6	57.4	10.2	19 31.90	0.37	- - -	80.02	22 20 52.29	- - -	
11	21†	Sun, 1st L. - - -	45.4	58.2	10.5	23.0	35.6	48.3	1.0	16 23.14	0.46	+ 64.04	81.73	11 18 49.37	- - -	B.
	22	Sun, 2d L. - - -	53.4	6.2	18.5	31.0	44.0	56.3	9.0	18 31.20	0.46	— 64.04	.73	11 18 49.35	- - -	
	23	γ Ursæ Majoris - -	23.4	45.0	6.2	28.0	49.4	11.0	32.3	44 27.90	0.92	- - -	.77	11 45 50.59	4.32	
	24	Mercury, 1st L. -	30.2	43.0	55.5	8.0	20.6	33.3	46.0	31 8.09	0.41	+ 0.17	.87	12 32 30.54	- - -	
	25	α Virginis - - - -	15.0	27.3	40.2	53.0	5.5	18.2	31.2	15 52.91	0.37	- - -	81.96	13 17 15.24	2.46	
	26	α Lyræ - - - - -	40.0	56.2	12.2	28.0	44.0	0.0	16.0	30 28.06	0.71	- - -	82.54	18 31 51.31	0.33	
	27	ζ Aquilæ - - - -	28.4	41.4	54.2	7.0	20.0	33.2	45.7	57 7.13	0.52	- - -	.60	18 58 30.25	0.66	
	28	δ Aquilæ - - - -	54.5	7.2	19.5	32.0	44.6	57.2	0.0	16 32.14	0.45	- - -	.63	19 17 55.22	0.74	
	29	γ Aquilæ - - - -	6.0	18.8	31.3	44.0	56.8	9.5	22.0	37 44.03	0.49	- - -	.68	19 39 7.20	0.52	
	30	α Aquilæ - - - -	26.0	39.0	51.3	4.0	16.5	29.3	42.0	42 4.01	0.48	- - -	.68	19 43 27.17	0.55	
	31	β Aquilæ - - - -	55.2	8.0	20.3	32.8	45.5	58.0	10.5	46 32.90	0.47	- - -	.69	19 47 56.06	0.55	
	32	α² Capricorni - - -	41.3	54.0	7.0	19.9	32.7	45.5	8.4	8 19.83	0.36	- - -	.72	20 9 42.91	+ 0.70	
	33	α Cygni - - - - -	3.5	21.0	38.5	56.0	13.6	31.3	49.2	34 56.17	0.78	- - -	.78	20 36 19.73	— 0.74	
	34	61¹Cygni - - - - -	0.0	16.0	31.5	47.3	3.2	19.4	35.3	58 47.53	0.70	- - -	.83	21 0 11.06	0.43	
	35	ζ Cygni - - - - -	26.8	41.0	55.4	10.1	24.4	39.0	53.5	5 10.00	0.63	- - -	.84	21 6 33.47	0.27	
	36†	α Cephei - - - -	18.3	45.0	11.5	38.0	5.0	32.0	58.0	13 38.26	1.09	- - -	.85	21 15 2.20	— 2.39	
	37	β Aquarii - - - -	38.0	50.5	3.2	16.0	28.5	41.0	53.7	22 15.84	0.40	- - -	.87	21 23 39.11	+ 0.38	
	38	ε Pegasi - - - - -	47.3	0.3	12.9	25.7	38.2	51.0	3.5	35 25.56	0.49	- - -	.89	21 36 48.94	0.14	
	39	Metis - - - - -	16.3	30.0	43.2	57.0	10.2	24.0	37.4	59 56.87	+ 0.30	- - -	.94	22 1 20.11	- - -	
	40	Dec. — 21° 58′ -	--	--	5.0	18.5	32.0	45.4	59.0	1 31.98	— 13.19	- - -	.94	22 2 41.73	0.43	
	41	Neptune - - -	45.0	57.5	10.2	23.0	35.6	48.4	1.2	19 22.99	+ 0.37	- - -	82.97	22 20 46.33	- - -	
	42	ζ Pegasi - - - - -	--	--	22.3	35.3	48.0	0.8	13.3	32 47 94	— 12.22	- - -	83.00	22 33 58.72	0.04	
13	43†	β Lyræ - - - - -	19.8	34.3	49.5	4.6	19.5	34.2	49.2	43 4.44	+ 0.66	- - -	86.93	18 44 32.03	0.40	
	44	ζ Aquilæ - - - -	--	--	50.0	2.6	15.3	28.7	41.3	57 15.58	— 12.36	- - -	.96	18 58 30.18	0.69	
	45	δ Aquilæ - - - -	50.2	3.0	15.3	28.0	40.3	53.0	5.5	16 27.90	+ 0.45	- - -	86.99	19 17 55.34	0.75	
	46	γ Aquilæ - - - -	1.2	14.0	27.0	39.7	52.3	5.0	17.5	37 39.53	0.49	- - -	87.02	19 39 7.04	0.55	
	47	α Aquilæ - - - -	22.0	34.3	47.0	59.7	12.3	25.0	37.5	41 59.69	0.48	- - -	.04	19 43 27.21	0.57	
	48	β Aquilæ - - - -	51.0	3.5	15.8	28.6	41.1	53.8	6.3	46 28.56	0.47	- - -	.05	19 47 56.08	+ 0.58	
	49	α Cygni - - - - -	59.0	16.6	34.2	52.0	19.2	27.0	45.0	34 51.86	0.78	- - -	.13	20 36 19.77	— 0.71	
	50†	61¹Cygni - - - - -	55.5	11.5	27.7	43.2	59.0	15.3	31.4	58 43.37	0.70	- - -	.18	21 0 11.25	0.42	
	51	ζ Cygni - - - - -	21.5	36.5	51.0	5.5	20.0	34.3	48.5	5 5.33	0.63	- - -	.19	21 6 33 15	— 0.25	
	52	β Aquarii - - - -	33.7	46.3	58.8	11.4	24.0	36.5	49.3	22 11.43	+ 0.40	- - -	+ 87.22	21 23 39.05	+ 0.39	

21 to 25, 33 34. Unsteady.
36. Very unsteady,
39 Observation of little weight.
43 to 40. Unsteady.
50 51. Very unsteady.

Date.	CLOCK. At 20h.	Hourly rate.	VALUE OF m.	n.	c.
	s.	s.	s.	s.	s.
Sept. 7	s 70.79	l .136	+ .419	+ .339	+ .015
10	79.78	.104			
11	82.71	.113			
13	s 87.07	l .109			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1849.			s.	s.	s.	s	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s	s.	
Sept. 13	1	ε Pegasi	43.0	56.0	8.5	21.2	33.5	16.5	59.4	35 21.16	+ 0.49	- - -	+ 87.24	21 36 48.89	+ 0.15	B.
	2	Metis	--	--	--	--	31.0	44.5	58.0	58 44.50	— 26.71	- - -	.29	21 59 45.08	- - -	
	3	Dec. — 21° 57′	34.0	47.3	1.0	14.3	28.0	40.8	54.5	1 14.27	+ 0.30	- - -	.29	22 2 41.86	0.43	
	4	Neptune	28.7	41.3	54.0	6.8	19.6	32.4	45.2	19 6.86	0.37	- - -	.32	22 20 34.55	- - -	
	5	ζ Pegasi	53.0	5.8	18.3	31.1	43.7	56.3	9.2	32 31.06	0.49	- - -	+ 87.35	22 33 58.90	0.05	
14	6†	α Aquilæ	20.1	32.7	45.3	58.1	10.7	23.4	35.9	43 58.03	0.48	- - -	31.21	19 43 27.30	0.57	K.
	7	β Aquilæ	49.1	1.8	14.3	26.5	39.3	51.9	4.6	48 26.79	0.47	- - -	.20	19 47 56.06	0.58	
	8	α² Capricorni	35.2	48.0	0.7	13.7	26.6	39.3	52.1	10 13.66	0.36	- - -	.17	20 9 42.85	+ 0.73	
	9	α Cygni	56.9	14.9	32.8	50.2	7.9	25.5	43.2	36 50.20	0.78	- - -	.13	20 36 19.85	— 0.69	
	10	61¹Cygni	53.8	9.6	25.4	41.3	57.2	13.1	28.9	0 41.33	0.70	- - -	.10	21 0 10.93	0.41	
	11	ζ Cygni	20.9	34.9	49.2	3.8	18.1	32.6	47.2	7 3.81	0.63	- - -	.09	21 6 33.35	0.24	
	12	α Cephei	11.6	38.2	5.5	31.8	58.5	25.0	51.7	15 31.76	1.09	- - -	.07	21 15 1.78	— 2.32	
	13	β Aquarii	31.9	44.5	56.9	9.4	22.2	34.9	47.2	24 9.57	0.40	- - -	31.06	21 23 38.91	+ 0.39	
15	14	Sun, 1st L.	59.3	11.9	24.2	36.7	49.2	1.8	14.3	32 36.77	0.45	+ 63.99	29.61	11 33 11.60	- - -	B.
	15	Sun, 2d L.	7.2	19.9	32.4	44.9	57.5	10.0	22.4	34 44.90	0.45	— 63.99	29.60	11 33 11.76	- - -	
	16	γ Aquilæ	57.0	9.8	22.5	35.2	47.8	0.6	13.4	39 35.19	0.49	- - -	28.84	19 39 6.84	0.57	
	17	α Aquilæ	17.6	30.2	42.9	55.3	8.0	20.8	33.5	43 55.47	0.48	- - -	.84	19 43 27.11	0.59	
	18	β Aquilæ	46.7	59.2	11.8	24.3	37.0	49.6	2.1	48 24.39	0.47	- - -	.83	19 47 56.03	0.60	
	19	α² Capricorni	33.0	45.6	58.5	11.2	24.0	37.1	49.8	10 11.31	0.36	- - -	.80	20 9 42.87	+ 0.75	
	20	α Cygni	55.0	12.0	30.0	48.0	5.4	23.0	40.5	36 47.70	0.78	- - -	.76	20 36 19.72	— 0.68	
	21	61¹Cygni	51.3	7.3	23.2	39.0	54.8	11.0	26.7	0 39.04	0.70	- - -	.72	21 0 11.02	0.39	
	22	ζ Cygni	18.3	32.5	47.0	1.4	15.9	30.3	44.6	7 1.43	0.63	- - -	.71	21 6 33.35	— 0.23	
	23	β Aquarii	29.5	42.1	54.6	7.2	20.0	32.3	45.1	24 7.26	0.40	- - -	.68	21 23 38.98	+ 0.40	
	24	Metis	3.2	16.5	30.0	43.4	57.0	10.6	24.2	58 43.56	+ 0.30	- - -	.63	21 58 15.23	- - -	
	25	Dec. — 22° 14′	--	--	--	57.3	11.0	24.5	38.0	0 17.70	— 19.98	- - -	.63	21 59 29.09	+ 0.45	
	26	Neptune	12.9	25.4	38.3	51.2	3.9	16.4	29.3	20 51.06	+ 0.37	- - -	.60	22 20 22.83	- - -	
	27	ζ Pegasi	48.6	1.5	14.3	27.0	39.7	52.3	5.0	34 27.20	0.49	- - -	28.57	22 33 59.12	0.04	
18	28	γ Aquilæ	51.9	4.9	17.3	30.2	42.8	55.3	8.1	39 30.07	0.49	- - -	23.48	19 39 7.08	0.64	K.
	29	α Aquilæ	12.1	24.8	37.4	50.2	2.7	15.5	28.0	43 50.10	0.48	- - -	.48	19 43 27.10	0.67	
	30	β Aquilæ	41.2	53.9	6.4	19.1	31.4	44.1	56.6	48 18.96	0.47	- - -	.47	19 47 55.96	0.67	
	31	α² Capricorni	27.4	40.2	53.0	5.9	18.7	31.6	44.4	10 5.89	0.36	- - -	.44	20 9 42.81	+ 0.82	
	32	61¹Cygni	45.9	1.8	17.6	33.7	49.5	5.3	21.2	0 33.57	0.70	- - -	.36	21 0 10.91	— 0.32	
	33	ζ Cygni	12.8	27.3	41.6	56.2	10.6	24.9	39.2	6 56.09	0.63	- - -	.35	21 6 33.37	0.16	
	34	α Cephei	4.2	30.9	57.2	24.3	50.7	17.3	44.0	15 24.09	1.09	- - -	.34	21 15 1.84	— 2.18	
	35	β Aquarii	24.6	36.9	49.5	2.0	14.4	27.0	39.6	24 2.00	0.40	- - -	.33	21 23 39.07	+ 0.44	
	36†	β Cephei	--	--	31.4	8.1	44.2	--	--	27 7.90	1.39	- - -	.32	21 26 45.97	— 3.74	
	37	ε Pegasi	33.8	46.2	59.0	11.6	24.2	37.0	49.6	37 11.63	0.49	- - -	.31	21 36 48.81	+ 0.21	
	38	Metis	53.4	6.8	20.4	33.9	47.3	0.9	14.3	56 33.86	0.30	- - -	.28	21 56 10.88	- - -	
	39	Neptune	50.6	2.9	16.2	28.8	41.7	54.2	6.8	20 28.74	0.37	- - -	23.25	22 20 5.86	- - -	
19	40†	γ Aquilæ	49.0	1.2	13.5	27.0	39.3	52.3	5.0	39 26.76	0.49	- - -	20.23	19 39 7.02	0.66	B.
	41	α Aquilæ	9.0	21.4	34.0	47.0	59.3	12.0	24.8	43 46.79	0.48	- - -	.23	19 43 27.04	0.67	
	42	β Aquilæ	37.8	50.3	3.0	15.7	28.3	40.6	53.3	48 15.57	0.47	- - -	.21	19 47 55.83	0.68	
	43	α² Capricorni	23.9	37.0	49.8	2.5	15.4	28.0	40.8	10 2.49	0.36	- - -	.17	20 9 42.68	+ 0.82	
	44	61¹Cygni	42.5	58.3	14.4	30.2	46.0	1.8	17.4	0 30.09	0.70	- - -	.07	21 0 10.72	— 0.31	
	45	ζ Cygni	9.3	24.0	38.0	52.4	7.0	21.3	36.0	6 52.57	0.63	- - -	20.06	21 6 33.14	— 0.16	
21	46†	δ Aquilæ	33.0	45.8	58.2	11.0	23.3	36.0	48.4	18 10.81	0.45	- - -	16.14	19 17 55.12	+ 0.91	
	47	γ Aquilæ	44.4	57.2	9.8	22.3	35.0	47.6	0.5	39 22.40	0.49	- - -	.11	19 39 6.78	0.69	
	48	α Aquilæ	5.0	17.4	30.0	43.0	55.2	8.0	20.5	43 42.73	0.48	- - -	.10	19 43 27.11	0.70	
	49	β Aquilæ	34.0	46.4	59.0	11.5	24.2	36.7	49.2	48 11.57	0.47	- - -	.10	19 47 55.94	0.71	
	50	α² Capricorni	20.0	33.0	45.5	58.4	11.2	24.1	37.2	9 58.49	0.36	- - -	.06	20 9 42.79	+ 0.85	
	51	α Cygni	42.0	59.8	17.4	35.0	52.3	10.3	27.0	36 34.83	0 78	- - -	16.02	20 36 19.59	— 0.53	
	52	61¹Cygni	38.7	54.4	10.2	26.2	42.0	58.2	14.0	0 26.24	+ 0.70	- - -	— 15.98	21 0 10.96	— 0.27	

Date.	CLOCK. At 21h.	Hourly rate.	VALUE OF m.	n.	c.
	s.	s.	s.	s.	s.
Sept. 13	s 87.18	l 0.109	+ .419	+ .339	+ .015
14	f 31.10	.086			
15	f 28.72	.093			
18	f 23.36	.090			
19	f 20.07	.119			
21	f 15.98	l .096			

6. At 19h. S. T., set the clock forward 2 minutes.
36 to 39. Very unsteady.
40. Extremely unsteady through the night.
46. Unsteady and badly defined through the night; misty.

TE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
19.			s	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s	h. m. s.	s.	
21	1	ζ Cygni - - - -	6.0	20.0	34.3	48.8	3.0	17.6	32.0	6 48.81	+ 0 0.63	- - -	— 15.97	21 6 3[illegible].47	— 0.12	B.
	2	ε Pegasi - - - -	26.2	39.6	51.5	4.1	16.7	29.2	42.0	37 4.10	0.49	- - -	.92	21 36 48.67	+ 0.23	
	3	Metis - - - - -	55.3	9.0	--	36.0	--	3.0	16.4	54 35.94	0.30	- - -	.90	21 54 20.34	- - -	
	4	Neptune - - -	26.6	39.3	52.0	5.0	17.6	30.0	42.8	20 4.76	0.37	- - -	.86	22 19 49.27	- - -	
	5	ζ Pegasi - - - -	36.0	48.8	1.5	14.2	26.6	39.7	52.2	34 14.14	0.49	- - -	15.83	22 33 58.80	0.07	
25	6	Sun, 1st L. - - -	34.2	46.8	59.3	12.1	24.5	47.2	49.5	8 11.94	0.43	+ 64.11	8.00	12 9 8.48	- - -	
	7	Sun, 2d L. - - -	42.3	55.0	7.3	20.1	32.5	45.2	58.0	10 20.06	0.43	— 64.11	7.99	12 9 8.39	- - -	
	8	β Lyræ - - - - -	54.0	8.5	23.4	38.3	53.7	8.5	23.4	44 38.54	0.66	- - -	.45	18 44 31.75	0.70	
	9	ο Sagittarii - - -	7.0	20.3	33.7	47.2	0.5	14.0	27.3	55 47.14	0.30	- - -	.43	18 55 40.01	1.38	
	10	π Sagittarii - - -	16.2	29.4	42.[illegible]	56.3	9.5	23.0	36.5	0 56.26	0.30	- - -	.42	19 0 49.14	1.35	
	11	Moon, 1st L. - -	43.0	56.3	9 9	23.5	37.0	50.7	4.3	21 23.53	0.32	+ 64.89	.39	19 22 21.35	- - -	
	12	e^2 Sagittarii - - -	23.2	36.0	49.0	2.0	15.2	28.2	41.3	34 2.13	0.33	- - -	.37	19 33 55.09	1.12	
	13	γ Aquilæ - - - -	35.8	48.4	1.0	13.7	26.3	39.1	52.0	39 13.76	0.49	- - -	.36	19 39 6.89	0.74	
	14	α Aquilæ - - - -	56.0	8.5	21.2	34.0	46.5	59.1	11.8	43 33.87	0.48	- - -	.36	19 43 26.99	0.76	
	15	g Sagittarii - - -	53.3	6.0	19.[illegible]	32.2	45.2	58.2	11.4	49 32.23	0.34	- - -	.35	19 49 25.22	1.04	
	16	a^2 Capricorni - - -	11.1	23.9	36.8	49.4	2.4	15.4	28.3	9 49.61	0.36	- - -	.32	20 9 42.65	+ 0.90	
	17	61^1 Cygni - - - -	29.8	45.5	1.6	17.5	33.3	49.2	5.2	0 17.44	0.70	- - -	.25	21 0 10.89	— 0.22	
	18	ζ Cygni - - - -	56.9	11.2	25.4	40.0	54.0	18.7	23.2	6 39.91	0.63	- - -	.24	21 6 33.30	0.08	
	19	α Cephei - - - -	48.0	14.5	41.3	8.0	34.5	1.0	28.0	15 7.90	1.09	- - -	.23	21 15 1.7[illegible]	— 1.99	
	20	β Aquarii - - - -	8.1	20.7	33.2	45.8	58.5	11.8	23.4	23 45.81	0.40	- - -	.22	21 23 38.99	+ 0.51	
	21	ε Pegasi - - - -	17.5	30.2	43.0	55.6	8.0	20.8	33.5	36 55.51	0.49	- - -	.20	21 36 48.80	0.24	
	22†	Metis - - - - -	43.2	56.0	9.7	23.2	37.0	50.4	4.0	52 23.36	0.30	- - -	.18	21 52 16.48	- - -	
	23	α Aquarii - - - -	43.6	16.0	58.5	11.0	23.7	36.2	48.6	58 11.09	0.43	- - -	.17	21 58 4.35	0.32	
	24	Neptune - - -	56.7	9.4	52.0	35.0	47.5	0.2	13.0	19 34.83	0.37	- - -	.14	22 19 28.06	- - -	
	25	ζ Pegasi - - - -	27.3	40.0	7.8	5.2	18.0	30.5	43.4	34 5.31	0.49	- - -	7.12	22 33 58.68	0.07	
27	26	Sun, 1st L. - - -	42.5	55.0	7.4	20.1	32.6	45.1	57.5	15 20.03	0.42	+ 64.17	3.47	12 16 21.15	- - -	
	27	Sun, 2d L. - - -	50.6	3.2	15.8	28.3	41.0	53.3	6.1	17 28.33	0.42	— 64.17	3.47	12 16 21.11	- - -	
	28	γ Aquilæ - - - -	31.0	44.0	56.5	9.2	22.0	34.8	47.3	39 9.26	0.49	- - -	2.87	19 39 6.88	0.78	
	29	α Aquilæ - - - -	51.3	4.0	16.5	29.2	42.0	54.7	7.3	43 29.29	0.48	- - -	.87	19 43 26.90	0.79	
	30	β Aquilæ - - - -	20.5	33.2	45.8	58.3	10.7	23.4	35.8	47 58.24	0.47	- - -	.86	19 47 55.85	0.80	
	31	β Capricorni - - -	57.2	10.3	23.0	36.3	49.2	2.0	15.2	12 36.17	0.34	- - -	.83	20 12 33.68	0.94	
	32	υ Capricorni - - -	52.1	5.5	18.5	31.7	45.2	58.2	11.4	31 31.80	0.32	- - -	.80	20 31 29.32	+ 0.89	
	33	α Cygni - - - -	28.8	46.3	4.0	21.4	39.0	57.0	14.4	36 21.56	0.78	- - -	.79	20 36 19.55	— 0.41	
	34	Moon, 1st L. - -	42.8	56.2	19.5	22.7	36.1	49.3	2.5	5 22.73	0.35	+ 64.77	.75	21 6 25.10	- - -	
	35	γ Capricorni - - -	9.0	22.0	35.0	48.0	1.3	14.4	27.4	31 48.16	0.33	- - -	.72	21 31 45.77	+ 0.61	
	36	δ Capricorni - - -	8.0	21.0	34.0	47.0	0.0	13.4	26.4	38 47.11	0.33	- - -	2.71	21 38 44.73	+ 0.58	
28	37	Sun, 1st L. - - -	16.4	29.0	41.5	54.0	6.6	19.0	31.5	18 54.00	0.42	+ 64.20	1.52	12 19 57.10	- - -	
	38	Sun, 2d L. - - -	24.8	37.3	50.0	2.5	15.0	27.4	40.2	21 2.46	0.42	— 64.20	.52	12 19 57.16	- - -	
	39	Polaris, S. P. - -	12.5	14.0	13.0	--	--	--	--	50 13.17	15 47.64	- - -	1.45	13 5 59.36	— 58.16	
	40	a^2 Capricorni - - -	4.8	17.4	30.3	43.1	55.9	8.8	22.0	9 43.19	0.36	- - -	0.88	2_0 9 42.67	+ 0.94	
	41	61^1 Cygni - - - -	23.2	39.2	54.9	10.8	26.8	42.7	58.5	0 10.87	0.70	- - -	.81	21 0 10.76	— 0.17	
	42	ζ Cygni - - - -	50.3	4.6	18.9	33.3	47.8	1.9	16.5	6 33.33	0.63	- - -	.81	21 6 33.1[illegible]	0.03	
	43	α Cephei - - - -	41.2	7.9	34.5	1.0	27.9	54.6	20.9	15 1.14	1.09	- - -	.80	21 15 1.43	— 1.8[illegible]	
	44	β Aquarii - - - -	1.7	14.2	26.7	39.4	51.8	4.4	17.2	23 39.34	0.40	- - -	.78	21 23 38.96	+ 0.54	
	45	γ Capricorni - - -	6.8	20.0	32.9	46.2	59.2	12.3	25.3	31 46.10	0.33	- - -	.77	21 31 45.66	0.63	
	46	ε Pegasi - - - -	11.2	23.8	36.3	49.2	1.8	14.3	27.2	36 49.12	0.49	- - -	.77	21 36 48.84	0.27	
	47	δ Capricorni - - -	5.7	19.2	31.9	45.0	58.2	11.3	24.3	38 45.09	0.33	- - -	.77	21 37 44.65	0.59	
	48	Metis - - - - -	22.0	45.4	49.1	2.6	16.2	29.7	43.0	51 2.57	0.30	- - -	.74	21 51 2.1[illegible]	- - -	
	49	Moon, 1st L. - -	41.9	54.9	8.2	21.4	34.4	47.5	0.6	57 21.27	+ 0.37	+ 64.72	.73	21 58 25.63	- - -	
	50	ι Aquarii - - - -	--	--	--	--	32.3	45.5	58.6	58 45.47	— 25.52	- - -	— 0.73	21 58 19.22	+ 0.49	

ate.	CLOCK. At 21h.	Hourly rate.	VALUE OF m.	n.	c.
	s.	s.	s.	s.	s.
21	f 15.98	l 0.096	+ .419	+ .339	+ .015
25	7.25	.084			
27	2.76	.081			
28	f 0.31	l .081			

22. Faint.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1849.			s.	s.	s.	s.	s.	s.	s.	m. s.	m s	s.	s.	h. m. s.	s.	
Sept. 28	1	θ Aquarii - - - -	16.9	29.3	42.2	54.7	7.4	20.0	32.8	8 54.76	+ 0 0.38	- - -	— 0.73	22 8 54.41	+ 0.40	B.
	2	Neptune - - - -	34.9	47.6	0.4	13.1	25.9	38.8	51.4	19 13.16	0.37	- - -	.71	22 19 12.82	- - -	
	3	ζ Pegasi - - - - -	20.9	33.7	46.1	58.9	11.7	24.3	36.9	33 58.93	0.49	- - -	— 0.68	22 33 58.74	0.10	
Oct. 8	4	61¹Cygni - - - - -	5.4	21.1	36.9	53.0	8.8	24.7	40.4	59 52.90	0.70	- - -	+ 17.03	21 0 10.63	0.02	K.
	5	ζ Cygni - - - - -	32.3	46.9	0.9	15.2	29.8	44.2	58.4	6 15.39	0.63	- - -	.04	21 6 33.06	+ 0.14	
	6	α Cephei - - - - -	23.3	49.9	16.5	43.2	9.8	36.2	2.8	14 43.10	1.09	- - -	.05	21 15 1.24	— 1.56	
	7	β Aquarii - - - - -	43.3	56.2	8.6	21.4	33.9	46.4	59.2	23 21.33	0.40	- - -	.06	21 23 38.79	+ 0.67	
	8	β Cephei - - - - -	--	13.9	50.3	26.9	2.9	39.8	--	26 26.76	1.39	- - -	.06	21 26 45.21	— 2.89	
	9	ε Pegasi - - - - -	53.1	5.8	18.2	31.2	43.7	56.3	9.2	36 31.07	0.49	- - -	.08	21 36 48.64	+ 0.40	
	10	α Aquarii - - - - -	9.1	21.4	34.0	46.8	59.0	11.4	24.2	57 46.56	0 43	- - -	.11	21 58 4.10	0.44	
	11	Neptune - - - - -	31.5	44.2	57.1	9.8	22.5	35.2	47.9	18 9.74	0.37	- - -	.14	22 18 27.25	- - -	
	12	ζ Pegasi - - - - -	2.9	15.7	28.3	41.2	53.6	6.4	19.2	33 41.04	0.49	- - -	17.16	22 32 58.69	0.16	
9	13	Neptune - - - - -	25.8	38.3	50.8	3.5	16.4	29.3	42.0	18 3.73	0.37	- - -	19.16	22 18 23.26	- - -	
	14†	ζ Pegasi - - - - -	1.0	13.5	26.3	39.2	51.6	4.5	17.9	33 39.01	0.49	- - -	19.19	22 33 58.69	0.18	
24	15†	β Aquarii - - - - -	21.7	34.1	46.6	59.3	12.0	24.5	37.2	22 59.34	0.40	- - -	38.89	21 23 58.63	0.89	
	16	ε Pegasi - - - - -	--	--	56.3	9.2	22.0	--	--	36 9.17	0.49	- - -	.89	21 36 48.55	0.62	
	17	Neptune - - - - -	16.7	29.5	42.2	54.9	7.7	29.4	33.2	16 54.94	0.37	- - -	.89	22 17 34.20	- - -	
	18	ζ Pegasi - - - - -	40.9	53.7	6.3	19.1	31.8	44.5	57.2	33 19.07	+ 0.49	- - -	.89	22 33 58 45	0.33	
	19†	Dec. + 14° 8′ -	--	--	12.4	25.2	38.3	51.2	3.8	57 38.18	— 12.39	- - -	+ 38.89	22 58 4.68	0.16	
	20	γ Ursæ Majoris - -	58.9	20.3	41.9	3.4	25.0	46.7	8.1	46 3.47	+ 0.92	- - -	— 13.04	11 45 51.35	3.70	
	21	Venus, 2d L. - -	51.9	4.3	16.9	29.4	42.1	54.4	7.1	8 29.44	0.44	— 0.41	.04	12 8 16.43	- - -	
	22	12 Canum Venaticorum	21.1	37.3	53.3	9.6	25.7	41.9	57.9	49 9.54	0.71	- - -	.04	12 48 57.21	3.02	
	23	α Virginis - - - -	49.7	2.3	15.1	27.9	40.6	53.4	6.1	17 27.87	0.37	- - -	.04	13 17 15.20	2.37	
	24	α Bootis - - - -	19.1	32.4	45.8	59.2	12.4	25.8	39.2	8 59.13	+ 0.56	- - -	— 13.04	14 8 46.65	2.59	
26	25†	ι Aquarii - - - -	53.5	6.4	19.3	32.2	45.1	58.0	11.0	58 32.21	— 0.23	- - -	13.08	21 58 18.90	0.83	
	26	σ Aquarii - - - -	16.6	29.4	42.1	54.9	7.7	20.4	33.2	22 54.9[illegible]	0.21	- - -	.08	22 22 41.61	0.66	
	27	Moon, 1st L. - -	53.3	6.5	19.5	32.7	45.5	58.7	11.8	25 32.57	0.21	+ 64.40	.08	22 26 23.68	- - -	
	28†	ζ Pegasi - - - - -	33.6	46.4	59.1	11.5	24.5	37.1	50.1	34 11.76	0.15	- - -	.08	22 33 58.53	0.35	
	29	λ Aquarii - - - -	22.0	34.7	47.3	59.9	12.5	25.2	37.9	44 59.93	0.21	- - -	.08	22 44 46.64	0.52	
	30	α Piscis Australis - -	50.1	4.3	19.2	33.9	48.2	2.9	17.2	49 33.69	0.28	- - -	.08	22 49 20.33	0.68	
	31	α Ursæ Majoris, S. P.	13.8	40.8	7.5	35.0	2.1	29.3	56.4	54 34.99	— 0.54	- - -	.08	22 54 21.37	+ 4.12	
	32	γ Cephei - - - -	47.2	42.0	37.1	32.0	26.8	21.5	16.2	33 31.83	+ 0.60	- - -	13.08	22 33 19.35	— 5.42	
30	33	ε Pegasi - - - -	26.4	39.0	51.6	4.1	16.9	29.7	42.2	37 4.27	- - -	- - -	- - -	- - - -	- - -	
Nov. 3	34	Neptune - - - -	54.1	--	19.6	32.6	45.2	--	10.8	17 32.46	— 0.21	- - -	16.46	22 17 15 79	- - -	
	35	ζ Pegasi - - - -	36.9	49.7	2.4	15.0	27.9	40.5	53.1	34 15.07	0.15	- - -	.46	22 33 58.46	+ 0.45	
	36	α Piscis Australis - -	53.2	7.9	22.3	36.9	51.2	5.9	20.4	49 36.83	0.28	- - -	.46	22 49 20.09	0.79	
	37	α Pegasi - - - -	54.9	7.9	20.9	33.9	46.8	59.7	12.6	57 33.82	— 0.13	- - -	.46	22 57 17.23	+ 0.28	
	38	γ Cephei - - - -	50.9	45.1	39.8	35.0	29.5	24.2	19.1	33 34.80	+ 0.60	- - -	— 16.46	23 33 18.94	— 4.96	
Dec. 7	39†	α Lyræ - - - - -	43.0	59.0	15.0	31.0	46.8	3.0	19.0	30 30.97	— 0.03	- - -	+ 78.34	18 31 49.28	+ 2.09	B.
	40	ζ Aquilæ - - - -	32.0	45.0	57.5	10.8	23.4	36.3	49.2	57 10.60	0.13	- - -	.34	18 58 28.81	1.94	
	41	δ Aquilæ - - - -	--	11.0	23.3	36.0	48.3	1.0	13.3	16 42.15	6.43	- - -	.34	19 17 54.06	1.94	
	42	γ Aquilæ - - - -	9.5	22.3	35.0	47.5	0.5	13.2	26.0	37 47.71	0.15	- - -	.34	19 39 5.90	1.81	
	43	α Aquilæ - - - -	30.0	42.7	55.3	8.1	20.7	33.3	46.0	42 8.01	— 0 0.15	- - -	+ 78.34	19 43 26.20	+ 1.81	

Date.	CLOCK. At 22h.	Hourly rate.	VALUE OF— m.	n.	c.
	s.	s.	s.	s.	s.
Sept. 28	f 0.73	l 0.081	+ .419	+ .339	+ .015
Oct. 8	s 17.11	.084			
9	s 19.14	l .084			
24	s 38.89	.000			
26	f 13.08	.000	— .179	+ .180	+ .015
Nov. 3	f 16.46	.000			
Dec. 7	s 78.34	.000			

14. Cloudy after this observation.
15. Windy. Observations this evening not good.
19. Moved minute-hand forward 1 minute, and shortened the pendulum 2 div. at 11h. S. T.
25. Adjusted the axis of the instrument before commencing to observe.
28. Very unsteady.
39. Observations this evening made with the electro-chronograph.

OBSERVATIONS

WITH THE

WEST TRANSIT INSTRUMENT,

1850.

NATIONAL OBSERVATORY.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
1850. Jan. 12	1	α Arietis	10.50	24.00	37.60	51.00	4.80	18.00	32.00	57 51.13	+ 0.03	- - -	+ 52.44	1 58 43.60	+ 0.08	R
	2	γ Ceti	1.73	14.40	26.70	39.40	51.82	4.35	16.83	34 39.32	0.07	- - -	52.49	2 35 31.88	+ 0.03	
	3	α Ceti	56.60	9.00	21.35	34.18	46.68	59.08	1.72	53 34.09	+ 0.07	- - -	52.53	2 54 26.69	— 0.08	
	4	α Persei	48.80	8.20	27.16	46.53	5.55	24.80	43.90	12 46.42	— 0.05	- - -	52.55	3 13 38.92	0.73	
	5	η Tauri	1.15	15.00	28.65	42.18	55.92	9.70	23.47	37 42.30	+ 0.02	- - -	52.59	3 38 34.91	0.41	
	6	γ^1 Eridani	31.00	43.95	56.65	9.81	22.61	35.35	48.47	50 9.69	0.10	- - -	52.62	3 51 2.40	0.34	
	7	Mars, 1st L.	56.45	10.30	24.10	38.20	52.00	6.00	19.90	8 38.14	0.02	(0.53)	52.73	5 9 31.42	- - -	
	8	Mars, 2d L.	57.60	11.35	25.15	39.35	52.90	7.15	20.90	8 39.20						
	9	α Orionis	33.00	45.73	58.23	11.00	23.68	36.21	48.92	46 10.97	0.06	- - -	52.80	5 47 3.83	— 0.75	
	10	δ Ursæ Minoris, S. P.	0.00	30.5	1.5	31.5	3.0	32.5	4.0	19 31.86	1.22	- - -	52.85	6 20 25.93	+ 18.08	
	11†	δ Geminorum	36.88	50.60	3.77	17.41	30.55	44.20	58.00	10 17.34	0.03	- - -	52.93	7 11 10.30	— 0.85	
14	12	γ Ceti	57.57	10.00	22.84	35.20	47.87	0.30	12.68	34 35.21	0.07	- - -	56.66	2 35 31.94	+ 0.06	
	13	α Ceti	51.95	4.55	16.93	29.70	42.25	54.87	7.40	53 29.66	+ 0.07	- - -	56.69	2 54 26.42	— 0.05	
	14	α Persei	44.60	3.83	22.80	42.00	1.20	20.20	39.88	12 42.07	— 0.05	- - -	56.71	3 13 38.73	0.70	
	15	η Tauri	57.20	10.88	24.40	38.35	51.55	5.40	19.60	37 38.20	+ 0.02	- - -	56.75	3 38 34.97	0.39	
	16	γ^1 Eridani	26.85	39.72	52.75	5.72	18.27	31.50	44.62	50 5.63	0.10	- - -	56.76	3 51 2.49	0.31	
	17†	α Tauri	43.82	56.63	9.75	22.00	35.78	48.93	2.00	26 22.70	0.04	- - -	56.80	4 27 19.54	0.54	
	18	B. Z. 396, +26° 16′	26.68	10.60	54.50	8.50	22.50	36.28	50.17	2 8.46	0.02	- - -	56.86	5 3 5.34	0.76	
	19†	Mars, 1st L.	41.60	55.30	8.95	23.55	7.40	51.20	5.00	7 23.29	0.02	(0.64)	56.87	5 8 20.82	- - -	
	20	Mars, 2d L.	42.75	56.65	10.50	24.98	38.60	52.58	5.90	7 24.57						
	21	β Tauri	9.90	23.95	38.25	52.75	6.85	21.00	35.45	15 52.59	0.01	- - -	56 88	5 16 49.48	0.77	
	22	δ Orionis	46.56	59.48	12.00	24.50	36.67	49.56	1.90	23 24.38	+ 0.07	- - -	56.89	5 24 21.34	0.70	
30	23	α Tauri	32.20	45.25	58.00	11.20	24.10	37.00	50.00	27 11.11	— 0.08	- - -	8.49	4 27 19.52	0.38	
	24	Mars, 1st L.	34.40	48.70	2.55	16.20	30.20	44.25	57.95	7 16.32	0.05	(0.48)	8.49	5 7 25.24	- - -	
	25	Mars, 2d L.	35.50	49.65	3.30	17.40	31.20	44.90	59.00	7 17.28						
	26	β Tauri	58.48	12.25	26.85	41.00	55.20	9.50	23.70	16 41.00	0.05	- - -	8.49	5 16 49.44	0.66	
	27	δ Orionis	35.33	47.85	0.37	12.70	25.55	37.87	50.40	24 12.87	0.11	- - -	8.49	5 24 21.25	0.59	
	28	ε Orionis	50.90	3.40	15.80	28.40	41.00	53.45	5.85	28 28.40	0.11	- - -	8.49	5 28 36.78	0.61	
	29	α Canis Majoris	45.70	58.65	11.95	24.90	37.90	50.95	3.90	38 24.85	0.14	- - -	8.49	6 38 33.20	0.95	
	30	β Geminorum	17.75	31.90	46.00	0.33	14.65	29.00	43.25	36 0.41	0.05	- - -	8.49	7 36 8.85	0.96	
Feb. 5	31†	α Tauri	45.90	59.00	11.90	25.40	38.00	51.10	4.50	26 25.11	0.08	- - -	54.13	4 27 19.16	0.29	
	32	β Orionis	48.60	1.10	13.75	26.25	39.00	57.70	3.80	6 26.31	0.13	- - -	54.07	5 7 20.25	0.45	
	33	β Tauri	12.70	27.20	41.00	55.50	9.70	24.00	38.20	15 55.47	0.05	- - -	54.05	5 16 49.47	0.58	
	34	δ Orionis	49.80	2.30	14.60	27.30	39.70	52.00	5.00	23 27.24	0.11	- - -	54.04	5 24 21.17	0.52	
	35	ε Orionis	5.40	17.90	30.30	42.65	55.30	8.00	20.00	27 42.79	0.11	- - -	54.03	5 28 36.71	0.54	
	36	α Canis Majoris	0.20	13.25	26.20	39.60	52.00	5.40	18.50	37 39.31	0.14	- - -	53.94	6 38 33.11	0.90	
	37	δ Geminorum	36.00	49.70	3.40	16.60	30.20	43.70	57.60	10 16.74	0.06	- - -	53.88	7 11 10.56	0.89	
	38†	α^2 Geminorum	24.35	38.80	54.00	8.75	23.00	38.30	52.60	24 8.50	0.03	- - -	53.87	7 25 2.38	0.97	
	39	α Canis Minoris	56.30	9.00	21.50	34.00	46.70	58.90	11.80	30 34.03	0.10	- -	53.86	7 31 27.79	0.92	
	40	β Geminorum	32.00	42.70	0.60	15.00	29.10	43.50	57.50	35 14.91	0.05	- - -	53.85	7 36 8.71	0.95	
11	41	α Tauri	58.60	11.70	24.60	37.40	50.70	3.60	16.50	26 37.59	0.08	- - -	41.71	4 27 19.22	0.20	
	42	β Orionis	0.80	13.60	26.00	38.70	51.50	4.00	16.80	6 38.77	0.13	- - -	41.65	5 7 20.29	0.36	
	43	Mars, 1st L.	56.65	10.60	24.55	38.40	52.45	6.50	20.20	14 38.48	0.05	(0.43)	41.63	5 15 20.49	- - -	
	44	Mars, 2d L.	57.65	11.25	25.30	39.35	53.30	7.45	21.15	14 39.34						
	45	δ Orionis	2.00	14.60	17.20	39.65	52.10	4.60	17.15	23 39.61	0.11	- - -	41.62	5 24 21.12	0.44	
	46	α Orionis	44.20	56.90	9.70	22.40	34.90	47.30	0.00	46 22.20	0.10	- - -	41.59	5 47 3.69	0.54	
	47	μ Geminorum	21.50	35.20	48.55	12.15	25.90	39.40	52.90	13 12.23	0.06	- - -	41.55	6 13 53.22	0.68	
	48	α Canis Majoris	12.65	25.65	38.70	51.90	4.90	17.90	30.90	37 51.80	0.14	- - -	41.52	6 38 33.18	0.84	
	49	ε Canis Majoris	20.80	35.00	49.20	3.60	17.80	32.00	46.20	52 3.51	0.16	- - -	41.50	6 52 44.85	1.06	
	50	δ Geminorum	48.60	2.00	15.65	29.00	42.60	56.00	9.80	10 29.09	0.06	- - -	41.47	7 11 10.50	0.86	
	51†	15 Argus	48.65	1.90	15.65	29.50	42.90	56.40	10.50	0 29.36	0.15	- - -	41.40	8 1 10.61	1.25	
	52	ε Hydræ	31.50	44.30	56.90	9.60	22.10	34.80	47.25	38 9.49	— 0.10	- - -	+ 41.35	8 38 50.74	— 1.01	

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s	s.	s.	s.
Jan. 12, 4.0	+ 52.63	+ 0.094	+ 0.020	— 0.127	+ 0.053
14, 4.0	56.78	+ .082			
30, 5.8	8.49	.000	— 0.161	+ 0.098	+ 0.053
Feb. 5, 6.2	53.97	— .087			
11, 6.6	+ 41.52	— .087			

Clamp East.

11. Very unsteady.
17, 19. Observation of little weight. Night extremely bad; misty, and stars extremely unsteady and ill-defined.
23, 30 Extremely bad night for observing; stars very unsteady and ill-defined.
31. Observed with full aperture; observation of no weight.
31, 40. Stars extremely unsteady.
38. Observations hardly worth recording.
51. Bad observation.

ATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer
850.			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
h. 11	1	ι Ursæ Majoris	18.00	37.20	56.00	14.70	33.80	52.75	11.40	48 14.84	+ 0.04	- - -	+ 41.33	8 48 56.21	— 1.26	B.
	2	α Hydræ	55.00	7.70	20.10	32.80	45.60	58.30	11.00	19 32.93	— 0.13	- - -	41.29	9 20 14.09	1.15	
12	3	α^1 Geminorum	--	--	7.00	22.07	36.71	--	--	24 21.93	0.03	- - -	39.97	7 25 1.87	0.92	K.
	4	α Canis Minoris	--	23.02	34.87	47.91	0.78	13.06	--	30 47.93	0.10	- - -	39.96	7 31 27.79	0.89	
	5	ε Hydræ	--	45.71	58.31	11.00	23.48	36.00	--	38 10.90	0.10	- - -	39.86	8 38 50.66	1.01	
	6	ε Leonis	--	13.39	27.14	41.00	54.76	8.25	--	36 40.91	0.06	- - -	39.78	9 37 20.63	1.00	
	7	α Leonis	--	18.45	31.16	44.12	56.75	9.66	--	59 44.03	0.08	- - -	39.75	10 0 23.70	0.99	
16	8	α Tauri	--	22.00	35.00	48.00	1.00	14.17	--	26 48.03	0.08	- - -	31.27	4 27 19.22	0.11	
	9	β Tauri	--	49.68	3.82	17.79	32.19	46.43	--	16 17.98	0.04	- - -	31.19	5 16 49.13	0.40	
	10	Mars, 1st L.	--	--	--	53.71	7.96	21.78	--	20 7.82	} 13.98	(0 30)	31.19	5 20 25.33	- - -	
	11	Mars, 2d L.	--	--	--	54.66	8.38	22.43	--	20 8.42						
	12	α Orionis	--	7.25	19.96	32.66	45.14	57.67	--	46 32.54	0.10	- - -	31.14	5 47 3.58	0.47	
	13	α Canis Majoris	--	36.19	49.03	--	15.25	28.25	--	38 2.18	0.14	- - -	31.07	6 38 33.11	0.78	
19	14	β Orionis	8.00	20.65	33.25	45.70	58.70	11.35	24.00	6 45.95	0.13	- - -	34.24	5 7 20.06	0.23	B.
	15	β Tauri	32.40	46.50	0.40	15.00	28.95	43.50	57.70	16 14.92	0.04	- - -	34.21	5 16 49.09	0.35	
	16	δ Orionis	9.40	21.80	34.35	47.20	59.40	11.90	24.50	23 46.94	0.11	- - -	34.19	5 24 21.02	0.32	
	17	ε Orionis	25.00	37.40	50.00	2.50	15.00	27.50	40.00	28 2.49	0.11	- - -	34.17	5 28 36.55	0.34	
	18	α Orionis	51.70	4.00	17.00	29.55	42.00	54.60	7.30	46 29.45	0.10	- - -	34.12	5 47 3.47	0.43	
	19	δ Geminorum	55.90	9.50	23.25	36.65	50.20	3.50	17.25	10 36.61	0.06	- - -	33.88	7 11 10.43	0.79	
	20	α^2 Geminorum	44.10	58.50	13.80	28.40	43.20	58.00	12.80	24 28.40	0.03	- - -	33.85	7 25 2.22	0.88	
	21	α Canis Minoris	16.25	28.80	41.30	54.00	6.60	19.00	31.80	30 53.96	0.10	- - -	33.83	7 31 27.69	0.85	
	22	β Geminorum	52.10	6.30	20.80	34.90	49.20	3.30	17.50	35 34.87	0.04	- - -	33.82	7 36 8.65	0.88	
	23	ε Hydræ	39.40	52.00	4.40	17.25	30.00	42.40	55.25	38 17.24	— 0.10	- - -	33.65	8 38 50.79	1.00	
	24	ι Ursæ Majoris	25.60	45.00	4.00	22.60	41.45	0.20	19.40	49 22.61	+ 0.04	- - -	33.61	8 48 56.26	1.25	
	25	ε Leonis	6.05	20.00	33.50	47.40	1.00	14.60	28.50	36 47.29	— 0.06	- - -	33.48	9 37 20.71	1.05	
	26	α Leonis	11.90	24.80	37.55	50.40	3.00	16.00	28.90	59 50.36	— 0.08	- - -	33.41	10 0 23.69	1.03	
	27	α Ursæ Majoris	32.50	0.00	27.00	54.30	21.00	48.50	15.50	53 54.11	+ 0.14	- - -	33.36	10 54 27.61	1.60	
	28	δ Leonis	55.00	8.30	21.80	35.30	48.90	2.00	15.65	5 35.28	— 0.07	- - -	33.33	11 6 8.54	0.96	
	29	δ Hydræ et Crateris	40.00	53.00	5.90	18.90	31.70	44.60	57.50	11 18.80	0.13	- - -	33.20	11 11 51.87	1.21	
	30	Jupiter, 1st L.	20.65	33.30	48.90	58.45	11.00	23.40	36.00	25 58.38	} 0.10	(1.48)	33.17	11 26 32.93	- - -	
	31	Jupiter, 2d L.	23.70	36.20	48.90	1.20	13.80	26.40	39.10	26 1.33						
20	32	α Columbæ	--	13.33	28.45	43.53	58.68	13.61	--	33 43.52	0.17	- - -	30.27	5 34 13.62	0.48	K.
	33	α Orionis	--	8.15	20.71	33.42	46.08	58.58	--	46 33.39	0.10	- - -	30.27	5 47 3.56	0.42	
22	34	μ Geminorum	--	55.17	8.75	22.24	35.65	49.25	--	13 22.21	0.06	- - -	31.40	6 13 53.55	0.53	
	35	α Canis Majoris	--	35.81	48.81	1.85	15.06	28.15	--	38 1.94	— 0.14	- - -	31.30	6 38 33.10	0.69	
	36	Jupiter, 1st L.	--	17.81	30.28	42.87	55.44	--	--	24 36.60	} + 6.18	(1.45)	30.14	11 25 14.37	- - -	
	37	Jupiter, 2d L.	--	20.77	33.09	45.83	58.32	--	--	24 39.50						
	38	β Leonis	--	29.17	42.13	55.07	8.30	21.10	--	40 55.15	— 0.08	- - -	30.06	11 41 25.13	0.93	
	39	β Corvi	--	35.20	48.77	--	--	29.53	--	25 57.83	+ 4.36	- - -	29.90	12 26 32.09	1.19	
23	40	β Tauri	40.60	55.10	9.20	23.40	37.80	52.00	6.20	16 23.47	— 0.04	- - -	25.58	5 16 49.01	0.28	B.
	41	δ Orionis	18.00	30.50	43.00	55.50	8.10	0.50	33.10	23 55.53	0.11	- - -	25.55	5 24 20.97	0.26	
	42	ε Orionis	33.80	46.00	58.30	11.00	23.50	36.00	48.60	28 11.03	0.11	- - -	25.53	5 28 36.45	0.28	
	43	α Orionis	--	12.80	25.30	38.20	50.90	3.50	16.00	46 44.45	6.36	- - -	25.46	5 47 3.55	0.37	
	44	δ Geminorum	5.00	18.60	31.70	45.30	58.60	12.50	26.00	10 45.39	0.06	- - -	25.12	7 11 10.45	0.74	
	45†	α^2 Geminorum	52.85	7.70	22.80	37.10	51.75	6.60	21.60	24 37.20	0.03	- - -	25.07	7 25 2.24	0.83	
	46	κ Geminorum	17.55	31.50	45.20	58.90	12.80	26.70	40.30	34 58.99	0.06	- - -	25.02	7 35 23.95	0.86	
	47	15 Argus	4.00	18.35	32.20	45.70	59.40	13.00	26.80	0 45.64	0.15	- - -	24.92	8 1 10.41	1.14	
	48	Moon, 1st L.	58.75	12.25	25.80	39.20	52.70	6.20	19.70	16 39.23	0.08	+ 72.35	24.85	8 18 16.35	- - -	
	49	α Cancri	14.50	27.80	40.20	53.30	6.20	18.80	31.60	49 53.20	0.08	- - -	24.73	8 50 17.85	1.03	
	50	α Hydræ	12.00	24.50	37.10	49.70	2.30	15.00	27.50	19 49.73	0.13	- - -	24.61	9 20 14.21	1.16	
	51	ε Leonis	15.00	28.80	42.50	56.10	9.80	23.40	37.50	36 56.16	0.06	- - -	24.53	9 37 20.63	— 1.05	
25	52	γ Pegasi	37.60	50.50	3.30	16.20	29.20	42.00	55.20	5 16.29	— 0.08	- - -	+ 13.65	0 5 29.86	+ 1.16	

Clamp East.

Feb. 18. Shortened pendulum 2.0 div.
20. Lengthened pendulum 3.5
25. Lengthened pendulum 7.5

45. Unsteady.

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
	h. s.	s.	s.	s.	s.
Feb. 11, 6.6	+ 41.52	— 0.087	— 0.161	+ 0.098	+ 0.053
12, 8.9	39.84	.087			
16, 5.5	31.17	.087			
19, 7.7	33.80	.170			
20, 5.7	30.27				
22, 9.2	30.69	.243			
23, 7.1	25.14	.244			
25, 7.4	+ 11.50	— .294			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1850			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Feb. 25	1	Polaris	9.00	14.00	16.00	19.00	19.00	23.00	25.00	4 17.86	+ 5.66	- - -	+ 13.35	1 4 36.87	+ 19.90	B.
	2	δ Orionis	31.30	44.00	56.20	9.00	21.35	34.00	46.00	24 8.89	— 0.11	- - -	12.09	5 24 20.87	— 0.22	
	3	ε Orionis	47.00	59.50	12.00	24.50	37.00	49.50	2.10	28 24.51	0.11	- - -	12.06	5 28 36.46	0.24	
	4	α Orionis	13.70	26.40	39.00	51.50	4.00	16.80	29.40	46 51.54	0.10	- - -	11.97	5 47 3.41	— 0.34	
	5	δ Ursæ Minoris, S. P.	55.50	24.50	54.00	25.50	54.50	22.50	52.00	20 24.07	2.38	- - -	11.82	6 20 33.51	+ 9.19	
	6	α Canis Majoris . .	42.35	55.15	8.20	22.00	34.40	47.40	0.50	38 21.29	0.14	- - -	11.73	6 38 32.88	— 0.65	
	7	Vesta	7.45	21.50	35.10	49.15	3.00	17.00	31.00	52 49.17	0.05	- - -	11.64	6 53 0.76	- - -	
	8	α^2 Geminorum . .	6.25	21.10	35.70	50.50	6.00	20.00	35.00	24 50.65	0.03	- - -	11.50	7 25 2.12	0.81	
	9	α Canis Minoris . .	38.60	51.00	3.50	16.30	29.00	41.40	54.00	31 16.26	0.10	- - -	11.47	7 31 27.63	0.78	
	10†	β Geminorum . .	14.50	28.70	42.70	57.10	11.10	25.60	39.00	35 56.06	0.04	- - -	11.44	7 36 8.36	0.81	
	11	15 Argus	18.25	32.25	45.80	59.60	13.20	27.00	40.25	0 59.68	0.15	- - -	11.32	8 1 10.65	1.12	
	12	ε Hydræ	1.80	14.30	27.10	39.75	52.15	5.00	17.50	38 39.66	0.10	- - -	11.15	8 38 50.71	0.97	
	13	α Hydræ	25.30	38.20	50.70	3.40	6.10	28.50	41.25	20 3.35	0.13	- - -	10.94	9 20 14.16	1.16	
	14	o Leonis	20.35	33.00	46.00	58.60	11.15	24.00	36.65	32 58.54	0.09	- - -	10.89	9 33 9.34	1.08	
	15†	α Leonis	34.60	47.25	0.30	13.00	26.00	38.40	51.60	0 13.02	0.09	- - -	10.72	10 0 23.65	1.06	
	16	Moon, 1st L. . .	37.50	50.50	3.70	16.70	29.80	42.80	55.65	21 16.66	0.09	+ 69.58	10.64	10 22 36.79	- - -	
	17†	β Leonis	59.00	12.00	24.40	37.00	50.00	2.50	15.00	24 37.13	0.09	- - -	10.62	10 24 47.66	1.11	
	18	χ Leonis	29.30	42.00	54.50	7.20	20.00	32.60	45.15	57 7.25	0.09	- - -	10.42	10 57 17.58	1.10	
	19	δ Leonis	17.60	31.00	44.60	58.00	11.40	24.70	38.20	5 57.93	0.07	- - -	10.39	11 6 8.25	1.02	
	20	δ Hydræ et Crateris .	3.00	16.00	28.80	41.90	54.90	7.40	20.40	11 41.77	0.13	- - -	10.36	11 11 52.00	1.27	
	21	Jupiter, 1st L. . .	4.20	16.70	29.15	41.65	54.35	7.00	19.40	23 41.78	0.10	(1.54)	10.32	11 23 53.54	- - -	
	22	Jupiter, 2d L. . .	7.00	20.00	32.25	44.60	57.50	10.00	22.35	23 44.86						
26	23	Mars, 1st L. . . .	..	14.98	28.98	42.82	56.82	10.74	..	32 42.87	0.05	+ 0.31	27.19	5 33 10.32	- - -	K.
	24	α Orionis	..	11.00	23.64	36.36	48.86	1.58	..	46 36.29	0.10	- - -	27.19	5 47 3.38	— 0.32	
	25	δ Ursæ Minoris, S. P.	..	9.20	40.00	10.70	41.00	11.30	..	20 10.44	— 2.38	- - -	27.19	6 20 35.25	+ 8.86	
	26	α Canis Majoris . .	..	39.82	52.72	5.80	..	31.80	..	38 2.53	+ 3.12	- - -	27.19	6 38 32.84	— 0.63	
	27	Vesta	..	3.78	17.62	31.70	45.52	59.50	..	52 31.62	— 0.05	- - -	27.19	6 52 58.76	- - -	
	28	α^2 Geminorum . .	..	5.42	20.12	35.00	49.80	4.44	..	24 34.96	0.03	- - -	27.19	7 25 2.12	0.80	
	29	α Canis Minoris . .	..	35.44	48.00	0.0	13.04	25.62	..	31 0.54	0.10	- - -	27.19	7 31 27.63	0.77	
	30	ε Hydræ	..	58.34	11.00	23.66	36.28	48.98	..	38 23.65	0.10	- - -	27.19	8 38 50.74	0.97	
	31	Jupiter, 1st L. . .	..	..	44.80	57.46	..	22.56	..	23 1.61	4.29	(1.53)	27.19	11 23 26.04	- - -	
	32	Jupiter, 2d L. . .	..	..	47.86	0.60	..	25.55	..	23 4.67						
	33	β Virginis . . .	..	1.80	14.50	26.80	39.38	51.86	..	42 26.83	0.11	- - -	27.19	11 42 53.91	— 1.08	
Mar. 6	34	δ Ursæ Minoris, S. P.	25.00	55.50	26.50	55.00	26.50	57.00	28.50	19 56.29	2.38	- - -	42.24	6 20 36.15	+ 6.44	B.
	35	α Canis Majoris . .	11.55	24.70	37.70	50.80	3.80	16.90	29.75	37 50.74	0.14	- - -	42.24	6 38 32.84	— 0.51	
	36	δ Geminorum . .	47.45	1.05	14.60	28.00	41.50	55.10	8.60	10 28.04	0.06	- - -	42.24	7 11 10.22	0.60	
	37	α^2 Geminorum . .	35.40	50.15	5.00	19.70	34.50	49.30	4.15	24 19.74	0.03	- - -	42.24	7 25 1.95	0.70	
	38	α Canis Minoris . .	7.50	20.15	32.80	45.85	58.00	10.60	23.15	30 45.44	0.10	- - -	42.24	7 31 27.58	0.69	
	39	β Geminorum . .	43.55	57.80	12.00	26.20	40.35	54.70	9.00	35 26.23	0.04	- - -	+ 42.24	7 36 8.43	0.70	
7	40	δ Geminorum . .	37.20	51.00	4.30	18.10	31.30	45.10	58.60	11 17.94	0.06	- - -	— 7.52	7 11 10.36	0.57	
	41	α^2 Geminorum . .	25.30	40.00	54.80	9.50	24.30	39.00	54.00	25 9.56	0.03	- - -	7.63	7 25 1.90	0.66	
	42	β Geminorum . .	33.70	48.00	2.00	16.30	30.40	44.60	59.00	36 16.29	0.04	- - -	7.75	7 36 8.50	0.67	
	43	15 Argus	37.60	51.30	5.00	18.65	32.25	46.00	59.60	1 18.63	0.15	- - -	7.98	8 1 10.50	0.99	
	44	α Hydræ	45.00	57.70	10.25	22.80	35.40	48.20	1.00	20 22.91	0.13	- - -	8.79	9 20 13.99	1.12	
	45	ε Leonis	48.30	2.30	16.00	29.80	43.50	57.00	11.00	37 29.70	0.06	- - -	8.91	9 37 20.73	1.03	
	46	α Leonis	54.60	7.35	20.10	33.15	46.00	58.75	11.45	0 33.06	0.09	- - -	9.14	10 0 23.83	1.06	
	47	δ Leonis	38.10	51.65	4.80	18.40	31.80	45.15	58.65	6 18.36	0.07	- - -	9.78	11 6 8.51	1.10	
	48	δ Hydræ et Crateris .	23.25	36.10	49.00	2.00	14.75	27.60	40.55	12 1.89	0.13	- - -	9.84	11 11 51.92	1.34	
	49	Jupiter, 1st L. . .	42.20	55.00	7.20	20.00	32.60	45.00	57.65	19 19.95	0.10	(1.40)	9.90	11 19 11.35	- - -	
	50	Jupiter, 2d L. . .	45.00	57.75	10.20	22.80	35.40	47.80	0.40	19 22.76						
9	51	α^2 Geminorum . .	52.50	7.60	22.40	37.25	52.00	6.80	21.40	25 37.14	0.03	- - -	35.28	7 25 1.83	0.63	
	52	α Canis Minoris . .	25.30	37.60	50.40	2.80	15.40	28.00	40.60	32 2.87	— 0.10	- - -	— 35.34	7 31 27.43	— 0.63	

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Feb. 25, 7.4	+ 11.50	— 0.294	— 0.161	+ 0.098	+ 0.053
26, 7.1	27.19	.00			
Mar. 5, 7.2	+ 42.24	.00			
7, 9.1	— 8.62	.583			
9, 7.5	— 35.34	— .577			

Clamp East.

1 to 22. Stars very unsteady.
10. Wire VII uncertain.
15. Unsteady.
17. Very uncertain; record on fillet imperfect.

TE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
50.			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
r. 9	1	β Geminorum . .	1.20	15.40	29.80	43.60	. .	12.40	26.60	36 41.50	+ 2.34	- - -	— 35.40	7 36 8.44	— 0.64	B.
11	2†	α Canis Majoris . .	56.00	9.00	21.75	35.00	48.00	1.00	14.20	39 34.99	— 0.14	- - -	62.21	6 38 32.64	0.40	
	3	Vesta	47.85	2.00	15.50	29.70	43.40	57.50	11.40	56 29.62	0.05	- - -	62.38	6 55 27.19	- - -	
	4	δ Geminorum . .	32.30	46.00	59.00	12.75	26.20	39.60	53.00	12 12.69	0.06	- - -	62.56	7 11 10 07	0.50	
	5	α^2 Geminorum . .	20.30	35.00	49.90	4.60	19.15	34.00	48.70	26 4.52	0.03	- - -	62.67	7 25 1.82	0.59	
	6	α Canis Minoris . .	52.40	5.15	17.50	30.25	42.90	55.25	7.30	32 30.19	0.10	- - -	62.73	7 31 27.36	0.60	
	7	β Geminorum . .	28.40	42.80	56.80	11.00	25.40	39.50	53.70	37 11.09	0.04	- - -	62.78	7 36 8.27	0.61	
	8	ε Hydræ	16.20	29.00	41.40	54.00	6.70	19.25	32.00	39 54.08	0.10	- - -	63.41	8 38 50.58	0.87	
	9	α Hydræ	39.90	52.80	5.00	18.00	30.50	43.10	55.70	21 17.86	0.13	- - -	63.75	9 20 13.98	1.09	
	10	ε Leonis	43.20	37.40	11.00	24.60	38.40	52.20	6.00	38 24.69	0.06	- - -	63.92	9 37 20.71	1.01	
	11	α Leonis	49.30	2.50	15.00	28.00	41.00	53.40	6.60	1 27.97	0.09	- . -	64.15	10 0 23.73	1.05	
	12	δ Leonis	32.80	46.40	0.00	13.40	26.70	40.00	53.70	7 13.29	0.07	- - -	64 21	11 6 9.01	1.12	
	13	δ Hydræ et Crateris .	18.20	31.10	44.00	57.20	10.00	22.70	35.55	12 56.96	0.13	- - -	64.27	11 11 52.56	1.36	
	14†	Jupiter, 1st L. . .	42.00	54.70	7.10	19.70	32.40	45.00	57.45	18 19.76	} 0.10	(1.52)	64.89	11 17 16.29	- - -	
	15†	Jupiter, 2d L. . .	45.00	57.80	10.10	22.90	35.45	47.90	0.50	18 22.81						
12	16	α Canis Majoris . .	. .	9.62	22.66	35.60	48.64	1.78	. .	38 35.66	0 14	- - -	2.92	6 38 32.60	0.39	K.
	17	ε Canis Majoris . .	. .	19.00	33.10	47.70	1.76	16.10	. .	52 47.53	0.16	- - -	2.92	6 52 44.45	0.56	
	18	α^2 Geminorum . .	. .	35.37	50.25	4.96	19.50	34.40	. .	25 4.90	0.03	- - -	2.92	7 25 1.95	0.58	
	19	ε Hydræ	. .	28.44	41.00	53.86	6.12	18.84	. .	38 53.65	0.10	- - -	— 2.92	8 38 50.63	0.86	
19	20	15 Argus	18.50	31.00	44.70	58.40	12.00	25.80	39.20	0 58.51	0.15	- - -	+ 12.04	8 1 10.40	0.80	B.
	21	ε Hydræ	0.25	13.30	26.00	38.80	51.20	3.80	16.40	38 38.54	— 0.10	- - -	12.04	8 38 50.48	0.77	
	22	ι Ursæ Majoris . .	47.00	5.90	24.70	43.70	2.70	21.50	40.00	43 43.64	+ 0.03	- - -	12.04	8 48 55.71	0.92	
	23	α Hydræ	24.20	37.00	49.50	2.20	14.80	27.30	40.00	20 2.14	— 0.13	- - -	12.04	9 20 14.05	1.02	
	24†	ε Leonis	27.60	41.10	54.80	8.50	22.20	36.00	49.75	37 8.56	0.06	- - -	12.04	9 37 20.54	0.95	
	25†	α Leonis	33.30	45.80	59.00	11.90	24.60	37.30	50.10	0 11.71	0.09	- - -	12.04	10 0 23.66	1.01	
	26†	δ Leonis	16.20	29.60	43.00	56.30	9.80	23.30	36.65	5 56.41	0.07	- - -	12.04	11 6 8.38	1.12	
23	27	θ Cancri	14.00	27.00	40.30	53.30	6.55	19.80	33.10	22 53.44	0.07	- - -	9.23	8 23 2.60	0.66	
	28	δ Cancri	21.00	34.25	47.50	0.60	14.00	27.00	40.15	36 0.64	0.07	- - -	9.22	8 36 9.79	0.72	
	29	α Cancri	29.90	42.60	55.40	8.30	21.00	33.80	46.90	50 8.27	0.09	- - -	9.21	8 50 17.39	0.78	
	30	Moon, 1st L. . .	35.00	48.40	1.80	15.40	28.70	41.85	55.00	54 15.16	0.08	+ 70.63	9.20	8 55 34.91	- - -	
	31	κ Cancri	50.40	3.10	16.00	28.70	41.45	54.00	7.00	59 28.66	0.09	- - -	9.19	8 59 37.76	0.83	
	32	α Hydræ	27.00	39.50	52.10	4.70	17.20	30.10	42.75	20 4.76	0.13	- - -	9.17	9 20 13.80	0.88	
	33	ε Leonis	30.10	44.00	57.65	11.20	25.10	39.00	52.70	37 11.39	0.06	- - -	9.15	9 37 20.48	0.92	
	34	α Leonis	36.15	49.00	1.80	14.75	27.45	40.10	53.00	0 14.61	0.09	- - -	9.13	10 0 23.65	0.98	
	35†	α Ursæ Majoris . .	. .	23.65	50.50	18.30	45.00	12.00	40.50	54 31.58	13.43	- - -	9.08	10 54 27.23	1.72	
	36	δ Leonis	19.50	32.90	46.30	59.90	13.00	26.80	40.00	5 59.77	0.07	- - -	9.06	11 6 9.76	1.12	
	37	Jupiter, 1st L. . .	53.00	5.50	18.00	30.60	43.00	56.00	8.50	11 30.66	} 0.10	(1.50)	9.06	11 11 41.12	- - -	
	38	Jupiter, 2d L. . .	55.80	8.50	21.10	33.65	46.20	59.00	11.35	11 33.66						
ril 2	39	ε Hydræ	. .	3.76	7.70	11.70	15.86	19.84	. .	38 11.77	0.35	- - -	38.84	8 38 50.26	0.57	K.
	40	ι Ursæ Majoris . .	. .	4.82	10.78	16.50	22.90	28.90	. .	48 16.78	0.12	- - -	38.85	8 48 55.51	0.63	
	41	α Hydræ	. .	27.22	31.22	35.06	39.20	43.32	. .	19 35.22	0.43	- - -	38 86	9 20 13.65	0.85	
	42	ε Leonis	. .	33.10	37.50	41.80	46.14	50.64	. .	36 41.84	— 0.26	- - -	38.87	9 37 20.45	0.79	
	43	α Ursæ Majoris . .	. .	31.08	39.80	48.40	57.38	5.86	. .	53 48.50	+ 0.02	- - -	38.88	10 54 27.40	1.59	
	44	δ Leonis	. .	21.42	25.60	29.78	34.14	38.54	. .	5 29.90	— 0.28	- - -	38.90	11 6 8.52	1.08	
	45	δ Hydræ et Crateris .	. .	5.14	9.40	13.42	17.66	21.74	. .	11 13.47	0.46	- - -	38.91	11 11 51.92	1.33	
	46	β Leonis	. .	38.54	42.72	46.66	51.00	55.14	. .	40 46.81	0.31	- - -	38.93	11 41 25.43	1.17	
	47	γ Ursæ Majoris . .	. .	4.08	11.00	17.44	24.78	31.62	. .	45 17.78	0.06	- - -	38.93	11 45 56.65	1.49	
	48	β Corvi	. .	45.38	49.72	53.92	58.38	2.72	. .	25 54.02	0.52	- - -	38.94	12 26 32.44	1.64	
	49†	12 Canum Venaticorum	. .	12.54	17.64	22.74	28.00	33.20	. .	48 22.82	0.18	- - -	38.95	12 49 1.59	1.30	
4	50	ε Leonis	. .	31.94	36.40	40.78	45.18	49.68	. .	36 40.80	0.26	- - -	39.86	9 37 20.40	0.77	
	51	α Leonis	. .	35.78	39.94	44.00	48.00	52.14	. .	59 43.97	— 0.32	- - -	39.87	10 0 23.52	0.86	
	52	α Ursæ Majoris . .	. .	29.78	38.60	47.00	56.06	4.80	.	53 47.25	+ 0.02	- - -	+ 39.88	10 54 27.15	— 1.55	

2—15. Stars unsteady.
14. Unsteady and ill-defined.
21, 25, 26, 35. Extremely unsteady.
49. All the wires have been increased 1s.

March 11, 23h. M. T. Touched regulator of clock.
March 19. Observed with old clock.
March 23. All the recorded transits have been increased by 6 minutes.
April 2. Turned eye-tube round, and made fixed wire coincide with its image.

Clamp East.

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Mar. 9, 7.5	— 35.34	— 0.577	— 0.161	+ 0.098	+ 0.053
11, 8 7	63.41	.570			
12, 7.4	— 2.92				
19, 9 4	+ 12.04				
23, 10.0	9.18	— .063			
Apr. 2, 10.8	38.90	+ .026	— 0.232	+ 0.306	— 0.155
4, 12.5	+ 39.90	+ .014			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1850.				s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
April 4	1	Jupiter, 1st L.	E.	57.16	1.10	5.06	8.78	12.94	6 5.01	} — 0.34	(1.41)	+ 39.89	11 6 45.97	- - -	K
	2	Jupiter, 2d L.	- - -	59.84	3.80	7.90	11.84	15.84	6 7.84						
	3	δ Hydræ et Crateris	- - -	4.16	8.36	12.36	16.78	20.96	11 12.52	0.46	- - -	39.89	11 11 51.95	— 1.32	
	4	γ Ursæ Majoris	- - -	2.78	10.00	16.72	23.90	30.76	45 16.83	0.06	- - -	39.90	11 45 56.67	1.47	
	5	12 Canum Venaticorum	- - -	11.22	16.50	21.58	27.06	32.18	48 21.71	— 0.18	- - -	39.90	12 49 1.43	— 1.31	
	6†	Polaris, S. P.	- - -	47.00	16.00	56.00	- -	- -	1 19.67	+ 149.02	- - -	39.91	13 4 28.60	+ 30.93	
	7	η Bootis	- - -	45.46	19.90	54.00	58.42	2.60	46 54.10	— 0.29	- - -	39.92	13 47 33.73	— 1.23	
	8	α^2 Libræ	- - -	49.00	53.16	57.12	1.16	5.48	41 57.18	— 0.47	- - -	39.93	14 42 36.64	1.36	
	9	β Ursæ Minoris	- - -	4.66	19.52	34.87	50.48	6.62	50 35.23	+ 0.31	- - -	39.93	14 51 15.47	3.06	
	10	α Serpentis	- - -	6.38	10.38	14.14	18.40	22.59	36 14.38	— 0.35	- - -	39.94	15 36 53.97	1.03	
	11	ζ Ursæ Minoris	- - -	16.14	35.84	- -	- -	35.14	48 49.04	+ 7.03	- - -	39.94	15 49 36.01	3.42	
6	12	ε Leonis	- - -	31.30	35.70	40.00	44.35	48.70	36 40.01	— 0.26	- - -	40.66	9 37 20.41	0.74	B
	13	α Leonis	- - -	35.00	39.00	43.00	47.15	51.30	59 43.09	— 0.32	- - -	40.66	10 0 23.43	0.84	
	14	α Ursæ Majoris	- - -	29.05	38.00	46.00	55.10	4.00	53 46.43	+ 0.02	- - -	40.66	10 54 27.11	1.51	
	15†	δ Hydræ et Crateris	- - -	3.85	7.90	11.50	16.00	20.20	11 11.89	— 0.46	- - -	40.66	11 11 52.09	1.31	
	16	β Leonis	- - -	36.70	40.90	44.85	49.10	53.45	40 45.00	0.31	- - -	40.66	11 41 25.35	1.15	
	17	β Corvi	- - -	43.75	48.10	52.10	50.85	1.00	25 52.36	0.52	- - -	40.66	12 26 32.50	1.60	
	18	12 Canum Venaticorum	- - -	10.70	15.55	21.00	25.40	31.10	48 20.95	0.18	- - -	40.66	12 49 1.43	1.32	
	19†	Hebe	- - -	40.70	44.60	48.75	52.50	56.80	59 48.67	0.32	- - -	40.66	13 0 29.01	- - -	
13	20†	α Hydræ	- - -	5.00	9.18	13.22	17.40	21.22	20 13.20	0.43	- - -	0.72	9 20 13.49	0.70	K
	21	α Leonis	- - -	14.90	18.98	22.90	27.14	31.24	0 23.03	— 0.32	- - -	0.73	10 0 23.44	0.76	
	22	α Ursæ Majoris	- - -	8.88	17.38	26.12	35.20	43.66	54 26.25	+ 0.02	- - -	0.74	10 54 27.01	1.35	
	23	δ Leonis	- - -	59.40	3.66	8.00	12.36	16.78	6 8.04	— 0.28	- - -	0.74	11 6 8.50	1.01	
15	24	δ Hydræ et Crateris	- - -	43.38	47.50	51.52	55.80	59.80	11 51.60	0.46	- - -	0.74	11 11 51.88	1.26	
	25	ε Hydræ	- - -	40.00	44.14	47.38	52.00	56.32	38 48.07	0.35	- - -	2.21	8 38 49.93	0.37	
	26	α Hydræ	- - -	3.66	7.60	11.80	15.90	19.74	20 11.74	0.43	- - -	2.24	9 20 13.55	0.67	
	27	ε Leonis	- - -	9.54	13.60	18.24	22.72	27.00	37 18.22	0.26	- - -	2.25	9 37 20.21	0.61	
	28	π Leonis	- - -	7.60	11.64	15.66	19.80	24.00	52 15.74	0.34	- - -	2.27	9 52 17.67	0.74	
	29	α Leonis	- - -	13.42	17.38	21.60	25.60	29.68	0 21.54	0.32	- - -	2.27	10 0 23.49	0.74	
	30	τ Leonis	- - -	4.36	8.59	12.18	16.34	20.44	20 12.38	0.36	- - -	2.33	11 20 14.35	1.12	
	31	γ Ursæ Majoris	- - -	40.34	47.14	53.96	1.28	8.00	45 54.14	0.06	- - -	2.34	11 45 56.42	1.37	
	32	β Corvi	- - -	22.00	26.42	30.36	35.00	39.34	26 30.62	0.52	- - -	2.38	12 26 32.48	1.61	
	33	12 Canum Venaticorum	- - -	49.08	54.00	59.40	4.52	9.64	48 59.33	0.18	- - -	2.40	12 49 1.55	— 1.33	
	34	Polaris, S. P.	- - -	21.30	53.00	35.50	20.00	43.60	4 34.68	5.57	- - -	2.41	13 4 31.32	+ 30.03	
	35	η Ursæ Majoris	- - -	24.40	30.39	36.44	43.00	49.30	41 36.71	0.11	- - -	2.44	13 41 39.04	— 1.58	
	36	η Bootis	- - -	23.20	27.40	31.58	36.26	40.16	47 31.71	0.29	- - -	2.44	13 47 33.86	1.33	
	37†	ε Bootis	- - -	16.12	20.98	25.14	29.94	34.58	38 25.35	0.24	- - -	2.48	14 38 27.59	1.33	
	38	α^2 Libræ	- - -	26.36	30.50	34.72	39.00	43.00	42 34.72	— 0.47	- - -	2.48	14 42 36.73	1.52	
	39	β Ursæ Minoris	- - -	42.00	57.38	11.90	28.22	43.38	51 12.58	+ 0.31	- - -	2.49	14 51 15.38	3.42	
	40	α Coronæ Borealis	- - -	10.18	14.72	19.05	23.82	28.36	28 19.23	— 0.25	- - -	2.52	15 28 21.50	1.27	
	41	ζ Ursæ Minoris	- - -	53.40	13.38	32.84	52.92	13.00	49 33.11	+ 0.48	- - -	2.54	15 49 36.13	4.14	
	42	β^1 Scorpii	- - -	34.00	38.24	42.56	47.06	51.08	56 42.59	— 0.50	- - -	2.54	15 56 44.63	1.39	
	43	δ Ophiuchi	- - -	20.34	24.56	28.38	32.34	36.24	6 28.37	0.40	- - -	2.55	16 6 30.52	1.20	
16	44	Jupiter, 1st L.	- - -	45.80	50.00	54.00	57.70	1.90	2 53.88	0.34	+ 1.44	3.55	11 2 58.53	- - -	B
	45	δ Leonis	- - -	56.40	0.90	5.00	9.55	13.90	6 5.15	0.28	- - -	3.55	11 6 8.42	0.98	
	46	δ Hydræ et Crateris	- - -	40.55	44.80	48.60	52.95	36.95	11 48.77	0.46	- - -	3.55	11 11 51.86	1.24	
	47	β Leonis	- - -	14.00	17.85	22.00	26.10	30.20	41 22.05	0.31	- - -	3.58	11 41 25.32	1.11	
17	48	ε Leonis	- - -	2.00	6.60	10.80	15.40	19.34	37 10.83	0.26	- - -	9.74	9 37 20.31	0.58	K
	49	α Leonis	- - -	5.79	9.62	13.86	18.12	22.08	0 13.89	0.32	- - -	9.74	10 0 23.31	0.71	
	50	β Ursæ Majoris	- - -	22.14	29.06	36.78	44.62	52.00	52 36.92	— 0.04	- - -	9.74	10 52 46.62	1.12	
	51	α Ursæ Majoris	- - -	0.26	9.10	17.26	26.28	35.56	54 17.69	+ 0.02	- - -	9.74	10 54 27.45	— 1.25	
	52	Jupiter, 1st L.	- - -	24.42	28.34	32.14	36.16	40.84	2 32.38	— 0.34	(1.47)	+ 9.74	11 2 43.25	- - -	

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c
h.	s.	s.	s.	s.	s.
April 4, 12.5	+ 39.90	+ 0.014	— 0.232	+ 0.306	— 0.155
6, 11.3	40.66	.002			
13, 10.4	0.74	.021			
15, 12.8	2.40	.046			
16, 11.3	3.56	.056			
17, 10.3	9.74	+ .004			

6. Reversed after passing wire IV.
15. Extremely unsteady. Stars very unsteady through the night.
19. Very indistinct; at times entirely disappearing.
20, 37 All the wires have been increased 1s.

April 11. Lengthened pendulum of new clock 6 div; put it in beat, and commenced using.
April 17. Shortened pendulum ¾ div.

.TE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
50.				s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
il 17	1	Jupiter, 2d L.	E.	27.42	31.14	35.10	39.40	43.60	2 35.33	— 0.02	(1.47)	+ 9.74	11 2 43.25	- - -	K.
	2	δ Hydræ et Crateris	- - -	34.32	38.44	42.52	46.72	51.06	11 42.61	— 0.46	- - -	9.74	11 11 51.89	— 1.23	
18	3†	α Ursæ Majoris	- - -	59.67	8.75	17.00	26.00	34.50	54 17.18	+ 0.02	- - -	9.83	10 54 27.03	1.23	B.
	4	Jupiter, 1st L.	- - -	9.75	13.70	17.80	21.90	26.00	2 17.83	— 0.34	+ 1.43	9.83	11 2 28.75	- - -	
	5	δ Leonis	- - -	50.40	54.55	58.63	3.15	7.35	5 58.82	0.28	- - -	9.83	11 6 8.37	0.97	
	6	δ Hydræ et Crateris	- - -	34.20	38.30	42.43	46.70	50.73	11 42.47	0.46	- - -	9.83	11 11 51.84	1.22	
	7	β Leonis	- - -	- -	11.64	15.90	20.00	24.10	41 17.91	2.39	- - -	+ 9.83	11 41 25.35	— 1.10	
27	8	δ Geminorum	- - -	21.36	25.70	30.10	34.43	38.59	11 30.04	0.28	- - -	— 20.40	7 11 9.36	+ 0.32	K.
	9	α² Geminorum	- - -	12.09	16.89	21.50	26.47	31.14	25 21.62	0.22	- - -	20.40	7 25 1.60	0.32	
	10	α Canis Minoris	- - -	39.50	43.5	47.39	51.51	55.43	30 47.47	0.35	- - -	20.40	7 31 26.72	0.18	
	11	β Geminorum	- - -	19.11	23.72	28.12	32.87	37.31	36 28.23	0.24	- - -	20.40	7 36 7.59	+ 0.26	
	12	15 Argus	- - -	21.61	25.90	30.10	34.71	39.07	1 30.28	0.54	- - -	20.40	8 1 9.34	— 0.05	
	13	ε Hydræ	- - -	2.50	6.51	10.46	14.62	18.74	39 10.57	0.35	- - -	20.39	8 38 49.83	0.19	
	14	ι Ursæ Majoris	- - -	3.30	9.27	15.20	21.48	27.49	49 15.35	0.12	- - -	20.39	8 48 54.84	— 0.01	
28	15	α Andromedæ	- - -	49.05	53.66	58.03	2.70	7.15	0 58.12	0.20	- - -	20.06	0 0 37.82	+ 0.62	
	16	γ Pegasi	- - -	42.31	46.35	50.43	54.70	58.83	5 50.52	0.31	- - -	20.06	0 5 30.15	0.67	
29	17	Venus, 1st L.	- - -	20.12	24.42	28.48	33.00	37.04	25 28.61	0.30	+ 0.35	20.03	3 25 8.63	- - -	
	18	α Tauri	- - -	30.07	34.29	38.29	42.69	46.91	27 38.45	0.31	- - -	20.02	4 27 18.12	0.90	
	19	α Aurigæ	- - -	44.53	50.30	55.91	1.88	7.59	5 56.04	0.14	- - -	20.01	5 5 35.89	1.07	
	20	β Orionis	- - -	31.05	35.24	39.10	43.42	47.34	7 39.23	0.43	- - -	20.01	5 7 18.79	0.86	
	21	β Tauri	- - -	59.00	3.67	8.09	12.80	17.39	17 8.19	— 0.24	- - -	20.01	5 16 47.94	+ 0.83	
	22	α Ursæ Majoris	- - -	29.10	38.06	46.20	55.57	4.00	54 46.59	+ 0.02	- - -	19.95	10 54 26.66	— 0.91	
	23	Jupiter, 1st L.	- - -	40.90	44.89	48.75	52.91	57.00	0 48.89	} + 0.67	(1.40)	19.95	11 0 29.99	- - -	
	24	Jupiter, 2d L.	- - -	43.58	47.62	51.60	55.79	- -	0 49.65						
	25	δ Leonis	- - -	19.89	24.19	28.50	32.90	37.08	6 28.51	— 0.28	- - -	19.94	11 6 8.29	0.85	
	26	δ Hydræ et Crateris	- - -	3.79	8.04	12.00	16.36	20.19	12 12.08	0.46	- - -	19.94	11 11 51.68	1.13	
	27	γ Ursæ Majoris	- - -	2.62	9.68	16.30	23.55	30.29	46 16.49	0.06	- - -	19.93	11 45 56.50	1.15	
	28	β Corvi	- - -	44.00	48.60	52.80	57.33	1.69	26 52.88	0.52	- - -	19 93	12 26 32.43	1.57	
	29	12 Canum Venaticorum	- - -	11.00	16.40	21.49	27.00	31.88	49 21.55	0.18	- - -	19.93	12 49 1.44	— 1.28	
	30	Polaris, S. P.	- - -	- -	25.4	1.2	- -	1.5	5 49.37	54.70	- - -	19.92	13 4.34.75	+ 26.15	
	31	α Virginis	- - -	31.59	35.60	39.49	43.77	47.89	17 39.67	0.44	- - -	19.92	13 17 19.31	— 1.54	
	32	η Ursæ Majoris	- - -	46.38	53.10	- -	5.26	11.80	41 59.13	0.14	- - -	19.92	13 41 39.07	1.60	
	33	η Bootis	- - -	45.69	49.81	54.00	58.22	2.33	47 54.01	0.29	- - -	19.92	13 47 33.80	1.39	
	34	α Bootis	- - -	2.69	6.71	10.80	15.23	19.60	9 11.01	0.29	- - -	19.91	14 8 50.81	1.39	
	35	α² Libræ	- - -	48.86	53.12	57.17	1.40	5.69	42 57.25	— 0.47	- - -	19.91	14 42 36.87	1.69	
	36	β Ursæ Minoris	- - -	5.16	20.55	35.34	51.83	6.91	51 35.96	+ 0.31	- - -	19.91	14 51 16.36	3.63	
	37	β Libræ	- - -	10.30	14.30	18.17	22.45	26.59	9 18.36	— 0.43	- - -	19.90	15 8 58.03	1.59	
	38	ζ Ursæ Minoris	- - -	- -	36 14	56.69	16.34	35.50	50 6.17	9.36	- - -	19.89	15 49 36.92	4.74	
	39	β¹ Scorpii	- - -	56.77	1.23	5.20	9.78	13.90	57 5.38	0.50	- - -	19.89	15 56 44.99	1.65	
	40	δ Ophiuchi	- - -	43.00	47.07	51.00	55.19	59 00	6 51.05	0.40	- - -	19.89	16 6 30.76	1.47	
	41	η Draconis	- - -	- -	- -	20.29	29.13	37.58	22 29.00	8.52	- - -	19.89	16 22 0.59	2.21	
	42	η Ophiuchi	- - -	0.20	4.52	8.41	12.95	16.61	2 8.54	0.47	- - -	19.88	17 1 48.19	1.42	
	43	ξ Ophiuchi	- - -	14.20	18.49	22.80	27.10	31.48	12 22.81	0.51	- - -	19.88	17 12 2.43	1.44	
	44	Moon, 2d L.	- - -	1.92	6.50	10.80	15.23	19.61	39 10.81	0.50	— 65.51	19.87	17 37 44.93	- - -	
	45	4 Sagittarii	- - -	51.10	55.30	- -	4.20	8.88	50 59.87	0.57	- - -	19.87	17 50 39.43	1.28	
	46	μ¹ Sagittarii	- - -	0.40	5.12	9.12	13.69	17.80	5 9.23	— 0.51	- - -	19.87	18 4 48.85	1.17	
30	47	α Ursæ Majoris	- - -	28.15	37.40	46.00	54.55	3.30	54 45.88	+ 0.02	- - -	19.46	10 54 26.44	0.88	B.
	48	δ Leonis	- - -	19.40	23.60	27.83	32.30	36.60	6 27.95	— 0.28	- - -	19.46	11 6 8.21	0.84	
	49	δ Hydræ et Crateris	- - -	3.20	7.55	11.60	15.80	19.93	12 11.62	0.46	- - -	19.46	11 11 51.70	1 12	
	50	β Leonis	- - -	37.00	41.00	45.00	49.04	53.30	41 45.07	0.31	- - -	19.44	11 41 25.32	1.0'	
	51	Weisse XII, 708	- - -	36.00	40.18	44.00	48.42	52.60	41 44.24	0.31	- - -	19.43	12 41 24.50	— 1.25	
	52	Polaris, S. P.	- - -	53.0	16.0	57.0	28.0	57.0	4 54.20	— 5.57	- - -	— 19.43	13 4 29.20	+ 25.73	

3. Fillet reading uncertain.

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Apr. 17, 10 3	+ 9.74	+ 0.004	— 0.232	+ 0.306	— 0.155
18, 11.3	+ 9.83	.004			
27, 7.7	— 20.40	.005			
29, 10.5	19.95	.011			
30, 12.7	— 19.43	+ .014			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R Ascension.	Reduct'n to 1850.0	Observer.
1850.				s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
April 30	1	α Virginis	E.	31.00	35.00	39.00	43.02	47.20	17 39.04	— 0.44	- - -	— 19.42	13 17 19.18	— 1.54	B.
	2	α Bootis	- - -	1.80	6.20	10.25	14.63	19.00	9 10.38	0.29	- - -	19.41	14 8 50.68	1.40	
	3	ε Bootis	- - -	38.25	42.80	47.15	51.80	56.20	38 47.24	— 0.24	- - -	19.40	14 38 27.60	1.47	
	4	β Ursæ Minoris	- - -	4.80	19.80	34.70	50.65	5.75	51 35.14	+ 0.31	- - -	19.40	14 51 16.05	— 3.65	
May 1	5	Mercury, 1st L.	- - -	3.26	7.54	11.63	16.21	20.59	33 11.85	— 0.28	+ 0.19	19.43	3 32 52.33	- - -	K.
	6	Venus, 1st L.	- - -	18.74	23.00	27.20	31.51	35.80	35 27.25	0.30	— 0.35	19.43	3 35 7.87	- - -	
	7	α Aurigæ	- - -	43.72	49.69	55.09	1.13	6.89	5 55.30	0.14	- - -	19.40	5 5 35.76	+ 1.09	
	8	β Orionis	- - -	30.43	34.31	38.47	42.86	46.78	7 38.57	0.43	- - -	19.40	5 7 18.74	+ 0.88	
	9	Leonis Min., (3661)	- - -	57.00	1.39	6.30	11.29	15.93	34 6.38	0.22	- - -	19.31	10 33 46.85	— 0.65	
	10	Leonis Min., (3704)	- - -	51.09	55.80	0.35	5.05	9.61	41 0.38	0.23	- - -	19.31	10 40 40.84	0.70	
	11	Leonis Min., (3728)	- - -	5.00	9.71	14.65	19.81	24.53	45 14.74	— 0.20	- - -	19.31	10 44 55.23	0.71	
	12	α Ursæ Majoris	- - -	28.40	37.25	45.59	54.43	3.00	54 45.73	+ 0.02	- - -	19.31	10 54 26.44	0.84	
	13	Jupiter, 1st L.	- - -	27.11	31.12	35.05	39.24	43.37	0 35.18	} — 0.34	(1.35)	19.30	11 0 16.89	- - -	
	14	Jupiter, 2d L.	- - -	29.71	33.86	37.72	42.09	46.00	0 37.88						
	15	β Leonis	- - -	36.55	40.69	44.82	49.04	53.24	41 44.87	0.31	- - -	19.30	11 41 25.26	1.00	
	16	β Corvi	- - -	43.40	48.00	52.30	57.00	0.90	26 52.32	0.52	- - -	19.28	12 26 32.52	1.56	
	17	12 Canum Venaticorum	- - -	10.61	15.38	20.89	26.30	31.40	49 21.02	— 0.18	- - -	19.28	12 49 1.56	— 1.27	
	18†	Polaris, S. P.	- - -	57.27	10.00	23.63	36.90	48.60	59 23.28	+ 329.41	- - -	19.28	13 4 33.41	+ 25.33	
2	19†	α Ursæ Majoris	- - -	20.40	29.30	38.00	46.90	55.40	54 38.00	+ 0.02	- - -	11.52	10 54 26.50	— 0.81	B.
	20	Jupiter, 1st L.	- - -	13.90	18.20	22.10	26.25	30.15	0 22.12	— 0.34	+ 1.38	11.50	11 0 11.66	- - -	
	21	δ Leonis	- - -	11.60	15.90	20.00	24.30	28.80	6 20.12	0.28	- - -	11.48	11 6 8.36	0.82	
	22	δ Hydræ et Crateris	- - -	55.10	59.50	3.60	7.90	12.00	12 3.62	0.46	- - -	11.46	11 11 51.70	1.10	
	23	β Leonis	- - -	28.90	32.80	36.70	40.80	44.85	41 36.81	0.31	- - -	11.39	11 41 25.11	0.99	
	24	12 Canum Venaticorum	- - -	2.70	8.00	13.00	18.20	23.10	49 13.00	0.18	- - -	11.37	12 49 1.45	1.26	
	25	α Virginis	- - -	22.90	26.80	30.40	34.70	38.80	17 30.72	0.46	- - -	11.11	13 17 19.15	1.54	
	26	η Ursæ Majoris	- - -	38.25	44.45	50.10	56.90	3.00	41 50.54	0.11	- - -	11.03	13 41 39.40	1.60	
	27	η Bootis	- - -	36.95	41.05	45.15	49.60	53.60	47 45.27	0.29	- - -	11.01	13 47 33.97	1.40	
	28	α Bootis	- - -	53.30	57.20	1.20	6.03	10.25	9 1.60	0.29	- - -	10.96	14 8 50.35	1.40	
	29	α^2 Libræ	- - -	39.90	44.20	48.20	52.50	56.75	42 48.31	— 0.47	- - -	10.85	14 42 36.99	1.72	
	30	β Ursæ Minoris	- - -	55.23	11.70	25.45	42.00	56.15	51 26.11	+ 0.31	- - -	10.82	14 51 15.60	3.65	
	31	β Libræ	- - -	1.23	5.20	9.20	13.45	17.25	9 9.27	— 0.43	- - -	10.78	15 8 58.06	1.62	
	32	α Coronæ Borealis	- - -	23.60	28.50	33.00	37.45	41.60	28 32.83	0.25	- - -	10.71	15 28 21.87	1.50	
	33	α Serpentis	- - -	57.30	1.50	5.25	9.60	13.45	37 5.42	0.35	- - -	10.69	15 36 54.38	1.49	
	34†	Lalande, (28891)	- - -	5.10	9.40	13.70	18.45	22.30	45 13.79	0.52	- - -	— 10.67	15 45 2.60	1.78	
6	35	δ Hydræ et Crateris	- - -	39.00	43.00	47.00	51.20	55.60	11 47.16	0.46	- - -	+ 4.93	11 11 51.63	1.05	
	36	β Leonis	- - -	12.30	16.60	20.40	24.90	29.00	41 20.64	0.31	- - -	4.91	11 41 25.24	0.95	
	37	β Corvi	- - -	19.40	23.60	28.00	32.40	36.65	26 28.01	0.52	- - -	4.89	12 26 32.38	1.53	
	38	Weisse XII, 708	- - -	11.45	15.65	19.60	23.90	28.00	41 19.72	0.31	- - -	4.88	12 41 24.29	— 1.22	
	39	Polaris, S. P.	- - -	44.00	9.00	39.00	1.00	29.00	4 36.40	5.57	- - -	4.86	13 4 35.69	+ 23.54	
9	40	δ Leonis	- - -	57.20	1.42	5.82	10.17	14.67	6 5.86	0.28	- - -	2.53	11 6 8.11	— 0.73	K.
	41	δ Hydræ et Crateris	- - -	41.20	45.49	49.48	53.69	57.89	11 49.55	0.46	- - -	2.53	11 11 51.62	1.02	
	42	Leonis, (3964)	- - -	48.61	53.00	57.30	1.77	6.00	32 57.34	0.28	- - -	2.52	11 32 59.58	0.87	
	43	β Leonis	- - -	14.69	18.85	22.90	27.29	31.21	41 22.99	0.31	- - -	2.52	11 41 25.20	0.93	
	44	γ Ursæ Majoris	- - -	39.70	46.49	53.20	0.59	7.29	45 53.45	0.06	- - -	2.52	11 45 55.91	0.95	
	45	β Corvi	- - -	21.78	26.09	30.42	35.00	39.10	26 30.48	— 0.52	- - -	2.50	12 26 32.46	— 1.51	
	46	Polaris, S. P.	- - -	38.00	22.90	9.50	56.40	44.40	59 10.24	+ 329.41	- - -	2.48	13 4 42.13	+ 22.14	
	47	α Virginis	- - -	8.90	13.12	17.27	21.41	25.40	17 17.22	— 0.46	- - -	2.48	13 17 19.24	— 1.52	
	48	η Ursæ Majoris	- - -	24.00	30.50	36.51	42.90	49.38	41 36.66	0.11	- - -	2.47	13 41 39.02	1.56	
	49	η Bootis	- - -	23.22	27.43	31.59	36.10	40.12	47 31.69	0.29	- - -	2.47	13 47 33.87	1.40	
	50	α Bootis	- - -	40.09	44.20	48.19	52 73	56.90	8 48.42	0.29	- - -	2.46	14 8 50.59	1.42	
	51	α^2 Libræ	- - -	26.69	30.79	34.90	39.10	43.69	42 35.03	— 0.47	- - -	2.45	14 42 37.01	1.77	
	52	β Ursæ Minoris	- - -	42.30	57.72	13.29	28.47	42.75	51 12.91	+ 0.31	- - -	+ 2.45	14 51 15.67	— 3.62	

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Apr. 30, 12.7	— 19.43	+ 0.014	— 0.232	+ 0.306	— 0.155
May 1, 9.4	19.33	.017			
2, 13.5	— 11.07	+ .180			
6, 11.8	+ 4.91	— .040			
9, 13.7	+ 2.47	— .023			

18. Observed on mic. wire at intervals of 10 div., beginning 40 div. before the 5th wire.
19, 34. Stars extremely unsteady.
May 2. Old clock used.

.TE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
850.				s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
y 9	1	α Coronæ Borealis	E.	10.40	15.13	19.62	23.78	28.47	28 19.48	— 0.25	- - -	+ 2.43	15 28 21.66	— 1.57	K.
	2	Iris	- - -	29.30	33.41	38.00	42.20	46.80	39 37.94	— 0.53	- - -	2.43	15 39 39.84	- - -	
	3	ζ Ursæ Minoris	- - -	54.20	14.82	33.90	53.29	13.60	49 33.96	+ 0.48	- - -	2.42	15 49 36.86	4.94	
	4	β^1 Scorpii	- - -	34.57	39.19	43.00	47.49	51.59	56 43.17	— 0.50	- - -	2.42	15 56 45.09	1.80	
	5	Anonymous—24° 44'	- - -	34.41	38.61	43.27	47.65	52.07	6.43.20	0.54	- - -	2.41	16 6 45.07	1.89	
	6	β Draconis	- - -	49.40	55.83	2.20	9.19	15.80	27 2.48	0.09	- - -	2.39	17 27 4.78	1.90	
	7	α Ophiuchi	- - -	49.47	53.69	57.72	1.86	6.03	27 57.75	— 0.31	- - -	2.39	17 27 59.83	1.42	
11	8	β Leonis	- - -	14.50	18.68	22.86	27.02	31.17	41 22.85	+ 0.42	- - -	1.90	11 41 25.17	0.91	
	9	γ Ursæ Majoris	- - -	39.13	46.10	52.79	0.00	6.80	45 52.96	+ 1.02	- - -	1.90	11 45 55.88	0.91	
	10	β Corvi	- - -	21.87	26.23	30.32	34.88	39.12	26 30.48	— 0.02	- - -	1.90	12 26 32.36	— 1.50	
	11	Polaris, S. P.	- - -	58.10	9.50	19.20	33.80	51.30	59 22.38	+ 316.47					
	12	Polaris, S P.	- - -	30.40	43.90	2.30	13.50	26.90	4 59.40	— 21.65	- -	1.90	13 4 42.20	20.95	
	13	Polaris, S. P.	W.	17.90	27.70	47.00	57.40	16.10	10 45.22	— 360.93					
12	14	Polaris	- - -	16.20	29.30	39.70	52.00	3.80	58 40.20	+ 360.93					
	15	Polaris	- - -	50.50	4.00	16.20	28.80	41.60	4 16.22	+ 22.81	- -	2.30	1 4 44.62	+ 20.01	
	16	Polaris	E.	37.90	49.70	3.10	16.20	29.40	10 3.26	— 316.47					
	17	α Arietis	- - -	31.40	35.76	39.88	44.60	48.53	58 40.03	+ 0.50	- - -	- - -	- - -	- - -	
13	18	β Leonis	- - -	14.00	18.03	22.16	26.30	30.50	41 22.20	0.42	- - -	2.48	11 41 25.10	— 0.89	
	19	γ Ursæ Majoris	- - -	38.52	45.41	52.20	59.22	6.10	45 52.29	+ 1.02	- - -	2.48	11 45 55.79	0.86	
	20	β Corvi	- - -	21.28	25.68	29.81	34.14	38.69	26 29.92	— 0.02	- - -	2.48	12 26 32.38	— 1.48	
	21	Polaris, S. P.	- - -	28.00	14.40	0.40	47.40	34.60	5 0.96	— 21.86	- - -	2.48	13 4 41.58	+ 19.70	
	22†	α Virginis	- - -	8.62	12.53	16.52	20.73	24.70	17 16.62	+ 0.14	- - -	+ 2.48	13 17 19.24	— 1.51	
16	23	Hydræ, (3926)	- - -	25.00	29.75	34.09	38.90	43.45	25 34.22	— 0.13	- - -	— 3.43	11 25 30.66	1.24	B.
	24	Hydræ, (3963)	- - -	41.50	46.40	51.05	56.15	1.00	32 51.22	— 0.20	- - -	3.43	11 32 47.59	1.35	
	25	β Leonis	- - -	19.80	24.00	28.00	32.30	36.45	41 28.11	+ 0.42	- - -	3.43	11 41 25.10	0.85	
	26†	β Corvi	- - -	27.00	31.50	35.80	40.05	44.00	26 35.67	— 0.02	- - -	3.44	12 26 32.21	1.46	
	27	12 Canum Venaticorum	- - -	53.45	59.00	3.82	9.10	14.20	49 3.91	+ 0.72	- - -	3.44	12 49 1.19	1.13	
	28	η Ursæ Majoris	- - -	29.00	35.00	41.35	47.72	54.00	41 41.41	0.91	- - -	3.45	13 41 38.87	1.50	
	29	η Bootis	- - -	28.45	32.55	36.80	41.00	45.30	47 36.82	+ 0.46	- - -	3.45	13 47 33.83	1.39	
	30	θ Centauri	- - -	48.20	53.00	58.00	2.85	8.00	57 58.01	— 0.23	- - -	3.46	13 57 54.32	2.15	
	31	Hydræ, (4711)	- -	36.00	40.20	44.52	49.10	53.60	4 44.68	— 0.07	- - -	3.46	14 4 41.15	1.92	
	32	α Bootis	- - -	45.20	49.48	53.60	58.00	2.10	8 53.68	+ 0.47	- - -	3.46	14 8 50.69	1.42	
	33	Hydræ, (4763)	- - -	24.30	29.00	33.20	37.90	42.20	14 33.32	— 0.08	- - -	3.46	14 14 29.78	1.97	
	34	Libræ, (4854)	- - -	30.65	35.00	39.19	43.80	48.20	34 39.37	— 0.04	- - -	3.46	14 34 35.87	1.95	
	35	ε Bootis	- - -	21.52	26.10	30.45	35.15	39.70	38 30.58	+ 0.56	- -	3.46	14 38 27.68	1.53	
	36	α^2 Libræ	- - -	32.12	36.35	40.32	44.70	48.80	42 40.46	+ 0.08	- - -	3.46	14 42 37.08	1.80	
	37	Hydræ, (4930)	- - -	43.80	48.35	52.80	57.40	1.80	49 52.83	— 0.09	- - -	3.46	14 49 49.28	2.03	
	38	Hydræ, (4940)	- - -	7.18	11.75	16.00	20.63	25.25	53 16.16	— 0.09	- - -	3.47	14 53 12.60	2.05	
	39	β Libræ	- - -	53.30	57.45	1.30	5.60	9.45	9 1.43	+ 0.17	- - -	3.47	15 8 58.13	1.75	
	40	α Coronæ Borealis	- - -	15.90	20.40	24.80	29.45	34.00	28 24.91	0.56	- - -	3.47	15 28 22.00	1.63	
	41	α Serpentis	- - -	49.73	53.65	57.45	1.70	5.80	36 57.67	0.33	- - -	3.47	15 36 54.53	1.65	
	42	ζ Ursæ Minoris	- - -	58.35	17.30	37.00	58.00	16.80	49 37.49	2.66	- - -	3.48	15 49 36.67	4.98	
	43†	β^1 Scorpii	- - -	40.00	44.60	48.35	53.00	57.00	56 48.59	+ 0.03	- - -	3.48	15 56 45.14	1.90	
18	44	β Corvi	- - -	27.50	32.00	36.00	40.43	44.83	26 36.15	— 0.02	- - -	3.77	12 26 32.36	1.44	
	45	12 Canum Venaticorum	- - -	54.16	59.25	4.30	9.60	14.67	49 4.40	+ 0.72	- - -	3.77	12 49 1.35	1.11	
	46	α Virginis	- - -	15.00	19.00	22.70	27.00	30.75	17 22.89	0.14	- - -	3.78	13 17 19.25	1.50	
	47	η Ursæ Majoris	- - -	29.03	36.00	42.00	48.48	54.52	41 42.01	0.91	- - -	3.78	13 41 39.14	1.48	
	48	η Bootis	- - -	28.68	32.72	37.00	41.50	45.50	47 37.08	0.46	- - -	3.78	13 47 33.76	1.39	
	49	α Bootis	- - -	45.05	49.46	54.00	58.13	2.48	8 53.82	0.47	- - -	3.78	14 8 50.51	1.42	
	50	ε Bootis	- - -	22.00	26.50	30.62	35.42	40.00	38 30.91	0.56	- - -	3.78	14 38 27.69	1.53	
	51	α^2 Libræ	- - -	32.50	36.70	40.50	45.00	49.12	42 40.76	0.08	- - -	3.78	14 42 37.06	1.81	
	52	β Ursæ Minoris	- - -	47.00	2.00	16.65	33.26	47.76	51 17.33	+ 2.13	- - -	— 3.78	14 51 15.68	— 3.49	

22. All the transits have been diminished 1s.
26. Last wire doubtful.
43. Hazy; thin clouds; stars blurred.

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
May 9, 13.7	+ 2.47	— 0.023	— 0.232	+ 0.306	— 0.155
11, 12.0	1.90	.000	E. +0.406	0.624	— 0.155
			W. +0.486	+ 0.562	+ 0.105
12, 2.0	2.30	.000			
13, 12.5	+ 2.48	.000			
16, 14.2	— 3.46	.009			
18, 13.8	— 3.78	— .005			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer
1850.				s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
May 18	1	β Libræ	E.	53.65	57.70	1.80	5.85	10.00	9 1.80	+ 0.17	. . .	— 3.78	15 8 58.19	— 1.76	B.
	2	Lalande, (28414)	- - -	56.62	1.00	5.20	9.68	14.00	29 5.30	— 0.02	. . .	3.79	15 29 1.49	2.01	
	3	Lalande, (28446)	- - -	53.10	57.35	1.62	6.20	10.40	30 1.73	0.02	. . .	3.79	15 29 57.92	2.01	
	4	Lalande, (28466)	- - -	29.25	34.00	38.15	42.69	47.00	30 38.22	— 0.02	. . .	3.79	15 30 34.41	2.01	
20	5	υ Virginis	- - -	5.00	9.00	13.00	17.10	21.10	38 13.04	+ 0.33	. . .	3.85	11 38 9.52	0.87	
	6	β Virginis	- - -	49.00	53.05	57.00	1.25	5.25	43 57.11	0.29	. . .	3.85	11 42 53.55	0.92	
	7†	Moon, 1st L.	- - -	33.55	37.68	41.80	46.15	50.80	4 42.00	0.29	+ 65.34	3.85	12 5 43.78	. . .	
	8	α Bootis	- - -	45.65	49.75	53.62	58.25	2.50	8 53.95	0.47	. . .	3.85	14 8 50.57	1.42	
	9	ε Bootis	- - -	21.82	26.55	30.90	35.60	40.00	38 30.97	0.56	. . .	3.85	14 38 27.68	1.54	
	10	α^2 Libræ	- - -	32.70	36.75	40.95	45.00	49.20	42 40.92	0.08	. . .	3.85	14 42 37.15	1.82	
	11	β Ursæ Minoris	- - -	46.10	2.90	17.10	32.70	47.60	51 17.28	+ 2.13	. . .	3.85	14 51 15.56	3.45	
	12	Iris	- - -	33.60	38.00	42.20	46.45	50.75	28 42.20	— 0.01	. . .	3.85	15 28 38.34	. . .	
	13	Lalande, (28446)	- - -	53.10	57.56	1.90	6.60	10.70	30 1.97	0.01	. . .	3.85	15 29 58.11	2.02	
	14	Lalande, (28466)	- - -	29.78	34.00	38.00	42.75	47.00	30 38.31	0.01	. . .	3.85	15 30 34.45	2.02	
	15	Anonymous—23° 2′	- - -	35.00	39.30	43.55	47.85	52.00	36 43.54	— 0.02	. . .	3.85	15 36 39.67	2.03	
	16†	ζ Ursæ Minoris	- - -	58.70	18.00	37.80	58.00	17.55	49 38.01	+ 2.66	. . .	3.85	15 49 36.82	4.95	
	17	β^1 Scorpii	- - -	40.40	44.90	49.00	53.15	57.35	56 48.96	0.03	. . .	3.85	15 56 45.14	1.95	
	18†	δ Ophiuchi	- - -	26.72	30.70	34.60	38.71	42.70	6 34.69	0.22	. . .	3.85	16 6 31.06	1.75	
21	19	β Leonis	W.	20.00	24.19	28.40	32.48	36.63	41 28.34	0.75	. . .	3.95	11 41 25.14	0.80	K.
	20	β Corvi	- - -	27.37	31.57	36.00	40.32	44.54	26 35.96	+ 0.37	. . .	3.95	12 26 32.38	1.42	
	21	Moon, 1st L.	- - -	29.29	33.29	37.50	41.77	45.81	56 37.53	+ 0.57	+ 64.64	3.95	12 57 38.79	. . .	
	22	θ Virginis	- - -	8.10	11.92	16.10	19.89	24.28	2 16.06	— 0.54	. . .	3.95	13 2 12.65	— 1.36	
	23	Polaris, S. P.	- - -	3.40	50.40	38.80	25.70	14.90	59 38.64	+ 307.14					
	24	Polaris, S. P.	- - -	39.70	23.00	9.70	59.30	45.20	5 11.38	— 22.81	. . .	3.95	13 4 43.12	+ 15.40	
	25	Polaris, S. P.	E.	3.20	52.80	38.50	26.00	11.80	10 38.46	— 351.60					
	26	α^2 Libræ	- - -	32.69	36.90	40.69	45.00	49.05	42 40.86	+ 0.08	. . .	3.95	14 42 36.99	— 1.82	
	27	Libræ, (4913)	- - -	36.23	40.23	44.64	48.57	52.70	45 44.47	— 0.04	. . .	3.95	14 45 40.48	1.98	
	28	Hydræ, (4930)	- - -	44.10	48.60	53.00	57.59	2.20	49 53.10	0.08	. . .	3.95	14 49 49.07	2.06	
	29	Hydræ, (4940)	- - -	7.51	12.10	16.51	21.13	25.60	53 16.57	0.08	. . .	3.95	14 53 12.54	2.08	
	30	Lupi, (5009)	- - -	23.52	28.22	32.89	37.42	42.31	5 32.87	— 0.15	. . .	3.95	15 5 28.77	2.17	
	31	β Libræ	- - -	53.70	57.72	1.59	6.00	10.00	8 1.80	+ 0.17	. . .	3.95	15 8 58.02	1.78	
	32	α Coronæ Borealis	- - -	16.30	20.81	25.20	30.00	34.27	28 25.32	+ 0.56	. . .	3.95	15 28 21.93	1.66	
	33	ψ^1 Lupi	- - -	11.91	16.80	21.30	26.29	31.12	30 21.48	— 0.20	. . .	3.95	15 30 17.33	2.28	
	34	ψ^2 Lupi	- - -	4.83	9.60	14.25	19.68	24.49	33 14.57	— 0.20	. . .	3.95	15 33 10.82	2.29	
	35	α Serpentis	- - -	50.10	54.11	58.00	2.20	6.20	36 58.12	+ 0.33	. . .	3.95	15 36 54.50	1.69	
	36	ζ Ursæ Minoris	- - -	58.19	18.80	38.07	58.30	17.20	49 38.11	+ 2.66	. . .	3.95	15 49 36.82	4.95	
	37	α Scorpii	- - -	10.20	14.62	19.00	23.37	27.89	20 19.02	— 0.07	. . .	3.95	16 20 15.00	2.07	
	38	υ Scorpii	W.	30.21	35.18	40.39	45.49	50.52	20 40.34	+ 0.20	. . .	3.95	17 20 36.59	2.20	
	39	λ Scorpii	- - -	21.73	26.50	32.00	36.70	41.79	23 31.74	0.20	. . .	3.95	17 23 27.99	2.18	
	40	β Draconis	- - -	54.06	0.70	7.79	14.00	21.00	27 7.51	1.39	. . .	3.95	17 27 4.95	2.15	
	41	α Ophiuchi	- - -	55.09	58.95	3.47	7.52	11.51	28 3.31	0.73	. . .	3.95	17 28 0.09	1.65	
22	42	12 Canum Venaticorum	- - -	53.50	58.40	3.74	9.00	14.10	49 3.75	1.08	. . .	3.56	12 49 1.27	— 1.06	B.
	43	Polaris, S. P.	- - -	7.75	47.55	28.00	6.65	50.00	59 27.99	+ 319.90					
	44	Polaris, S. P.	- - -	50.00	31.00	12.00	50.70	31.10	5 10.96	— 22.81	. . .	3.56	13 4 44.90	+ 14.73	
	45	Polaris, S. P.	E.	11.10	14.25	54.00	34.70	12.40	10 55.71	— 364.36					
	46†	α Virginis	- - -	14.40	18.60	22.40	26.70	30.70	17 22.56	+ 0.15	. . .	3.56	13 17 19.15	— 1.48	
26	47	Polaris	W.	5.00	19.10	34.00	45.51	57.69	4 32.26	+ 22.80	. . .	5.05	1 4 50.01	+ 11.45	K.
27	48	Polaris, S. P.	E.	50.39	4.60	16.40	28.05	42.52	5 16.39	— 21.85	. . .	5.18	13 4 49.36	+ 11.08	
	49	θ Centauri	W.	49.54	54.42	59.53	4.40	9.20	57 59.42	+ 0.22	. . .	5.19	13 57 54.45	— 2.11	
	50	Hydræ, (4711)	- - -	37.33	41.80	46.39	50.73	55.14	4 46.28	0.22	. . .	5.19	14 4 41.31	1.89	
	51	α Bootis	- - -	46.50	50.70	55.09	59.16	3.50	8 54.99	0.80	. . .	5.19	14 8 50.60	1.40	
	52	Hydræ, (4763)	- - -	25.80	30.09	34.90	39.12	43.76	14 34.73	+ 0.32	. . .	— 5.19	14 14 29.86	— 1.92	

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s	s.	s.
May 18, 13.8	— 3.78	— 0.004	E. +0.406	+ 0.624	— 0.155
			W. +0.486	0.562	+ 0.105
20, 13.1	3.85	.001			
21, 14.8	3.95	.00			
22, 13.0	3.56	.00			
27, 15.8	— 5.21	— .011			

7. 5th wire not good.
16, 18. Stars unsteady.
46. Cloudy.

TE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
50.				s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
y 27	1	Hydræ, (4784)	W.	21.89	26.40	31.16	35.60	40.10	19 31.03	+ 0.30	. . .	— 5.19	14 19 26.14	— 1.90	K.
	2	ε Bootis	- - -	22.95	27.36	32.21	36.58	41.05	38 32.03	0.90	. . .	5.20	14 38 27.73	1.53	
	3	α^2 Libræ	- - -	33.60	37.71	42.00	46.00	50.21	42 41.90	0.44	. . .	5.20	14 42 37.14	1.83	
	4	Lalande, 28251	- - -	24.86	29.17	33.56	37.83	42.22	23 33.53	0.38	. . .	5.21	15 23 28.70	2.03	
	5	α Coronæ Borealis	- - -	17.29	21.60	26.32	30.65	35.23	28 26.22	0.90	. . .	5.21	15 28 21.91	1.68	
	6	α Serpentis	- - -	51.22	55.08	59.20	3.19	7.21	36 59.18	0.67	. . .	5.21	15 36 54.64	1.72	
	7	δ Ophiuchi	- - -	27.82	31.72	35.89	39.80	43.72	6 35.79	0.56	. . .	5.21	16 6 31.14	1.82	
	8	β Draconis	E.	55.91	2.41	8.88	15.70	22.30	27 9.04	0.97	. . .	5.23	17 27 4.78	2.24	
	9	α Ophiuchi	- - -	56.50	0.57	4.59	8.90	12.90	28 4.69	0.39	. . .	5.23	17 27 59.85	1.74	
	10	ο Serpentis	- - -	57.66	1.78	5.93	10.00	14.14	33 5.90	0.11	. . .	5.23	17 33 0.78	1.85	
	11	Moon, 2d L.	- - -	57.77	2.20	6.51	10.89	15.54	11 6.58	0.02	— 65.44	5.24	18 9 55.92	. . .	
	12	α Lyræ	- - -	47.55	52.77	57.79	3.10	8.18	31 57.86	+ 0.71	. . .	5.24	18 31 53.33	1.85	
	13	φ Sagittarii	- - -	13.70	18.20	22.80	27.27	31.94	36 22.80	— 0.09	. . .	5.24	18 36 17.47	1.99	
28	14†	β Corvi	- - -	28.07	33.00	37.10	41.47	45.80	26 37.21	— 0.02	. . .	4.98	12 26 32.21	1.36	B.
	15	12 Canum Venaticorum	- - -	54.86	0.00	5.31	10.59	15.71	49 5.29	+ 0.72	. . .	4.98	12 49 1.03	— 0.99	
	16	Polaris, S. P.	- - -	7.61	46.70	27.21	6.50	47.00	59 27.00	+ 329.24					
	17	Polaris, S. P.	- - -	55.00	33.00	15.00	57.60	38.35	5 15.79	— 21.64	. . .	4.98	13 4 49.75	+ 10.38	
	18	Polaris, S. P.	W.	46.28	27.79	7.30	48.20	27.80	11 7.47	— 373.68					
	19	θ Centauri	- - -	49.52	54.00	59.40	4.17	9.49	57 59.32	+ 0.22	. . .	4.98	13 57 54.56	— 2.10	
	20	α Bootis	- - -	46.50	50.55	55.00	59.35	3.43	8 54.97	0.80	. . .	4.98	14 8 50.73	1.39	
	21	ε Bootis	- - -	22.75	27.20	31.85	36.29	41.00	38 31.82	0.90	. . .	4.98	14 38 27.84	1.53	
	22	α^2 Libræ	- - -	33.43	37.55	41.85	46.00	50.00	42 41.77	0.44	. . .	4.98	14 42 37.23	1.83	
	23	β Libræ	E	54.75	59.00	3.00	7.00	11.00	9 2.95	0.16	. . .	4.98	15 8 58.13	1.81	
	24	α Coronæ Borealis	- - -	17.28	21.80	26.12	31.00	35.12	28 26.26	0.56	. . .	4.98	15 28 21.84	1.68	
	25	α Serpentis	- - -	51.15	55.20	59.30	3.30	7.30	36 59.25	0.33	. . .	4.98	15 36 54.60	1.73	
	26	ζ Ursæ Minoris	- - -	58.90	19.38	38.32	58.68	18.00	50 38.66	2.66	. . .	4.98	15 49 36.34	4.83	
	27	β^1 Scorpii	- - -	41.63	45.85	50.20	54.40	58.70	56 50.16	0.03	. . .	4.98	15 56 45.21	2.02	
	28	ε Ursæ Minoris	- - -	41.00	10.70	40.00	10.15	39.70	1 40.31	3.87	. . .	4.98	17 1 39.21	7.99	
	29	α Herculis	- - -	46.65	50.50	54.75	59.00	3.00	7 54.78	+ 0.41	. . .	4.98	17 7 50.20	1.76	
	30	υ Scorpii	- - -	31.61	36.60	41.46	46.51	52.00	20 41.64	— 0.26	. . .	4.98	17 20 36.40	2.27	
	31	α Ophiuchi	- - -	56.30	0.65	4.65	8.85	12.80	28 4.65	+ 0.39	. . .	4.98	17 28 0.06	1.76	
	32	Serpentis, (6066)	- - -	55.58	59.80	4.11	8.80	13.26	48 4.31	— 0.04	. . .	4.98	17 47 59.29	1.97	
	33	μ^1 Sagittarii	- - -	45.71	50.00	54.22	58.69	2.80	4 54.28	0.00	. . .	4.98	18 4 49.30	1.88	
	34	ε Sagittarii	- - -	10.21	15.00	20.00	24.70	29.70	14 19.92	— 0.21	. . .	4.98	18 14 14.73	2.07	
	35	δ Ursæ Minoris	- - -	45.00	52.00	56.00	6.00	13.00	20 58.40	+ 8.29	. . .	4.98	18 21 1.71	18.06	
	36	α Lyræ	- - -	47.40	52.64	57.55	2.70	8.00	31 57.66	+ 0.71	. . .	4.98	18 31 53.39	1.87	
	37	φ Sagittarii	- - -	14.80	19.29	23.78	28.35	32.80	36 23.80	— 0.08	. . .	4.98	18 36 18.74	2.00	
	38	π Sagittarii	- - -	48.50	52.70	56.81	1.25	5.54	0 56.96	0.00	. . .	4.98	19 0 51.98	— 1.66	
ne 3	39	α Canis Majoris	W.	29.00	33.10	37.36	41.60	45.80	38 37.37	+ 0.44	. . .	6.28	6 38 31.53	+ 0.80	
	40	ε Canis Majoris	- - -	39.80	44.21	49.50	53.70	58.20	52 48.98	0.31	. . .	6.27	6 52 43.02	0.87	
	41	α Canis Minoris	- - -	23.82	27.80	32.00	36.00	40.00	31 31.92	0.65	. . .	6.26	7 31 26.31	0.54	
	42	β Geminorum	- - -	3.00	7.70	12.50	16.84	21.41	36 12.29	0.91	. . .	6.26	7 36 6.94	+ 0.66	
	43	12 Canum Venaticorum	- - -	55.50	0.70	6.02	11.15	16.40	49 5.95	1.09	. . .	6.15	12 49 0.89	— 0.91	
	44	Polaris, S. P.	- - -	19.20	1.30	41.55	20.53	2.05	59 40.93	+ 319.91					
	45	Polaris, S. P.	- - -	0.50	47.83	28.60	6.30	45.10	5 25.67	— 22.80	. . .	6.14	13 4 55.47	+ 6.52	
	46	Polaris, S. P.	E.	46.26	25.64	4.65	45.50	25.80	11 5.47	— 364.35					
	47	α Virginis	- - -	16.81	21.00	25.00	29.11	33.00	17 24.98	+ 0.15	. . .	6.14	13 17 18.99	— 1.42	
	48	θ Centauri	- - -	50.68	55.59	0.40	5.32	10.10	58 0.42	— 0.23	. . .	6.13	13 57 54.78	2.08	
	49	Hydræ, (4711)	- - -	38.20	42.69	47.10	51.59	56.05	4 47.13	— 0.07	. . .	6.13	14 4 40.93	1.87	
	50	α Bootis	- - -	47.50	51.90	56.00	0.40	4.75	8 56.11	+ 0.47	. . .	6.13	14 8 50.45	1.36	
	51	Hydræ, (4784)	- - -	23.00	27.45	32.14	36.69	14.24	19 32.10	— 0.11	. . .	6.12	14 19 25.87	2.01	
	52	Libræ, (4854)	- - -	33.10	37.30	41.70	46.20	50.68	34 41.80	— 0.04	. . .	— 6.12	14 34 35.64	— 1.91	

14. All the transits have been increased 1s.

Date.	Clock.	Hourly rate.	VALUE OF— m.	n.	c.
h.	s.	s.	s.	s.	s.
May 27, 15.8	— 5.21	— 0.011	E. +0.406	+ 0.624	— 0.155
			W. +0.486	+ 0.562	+ 0.105
28, 15.5	4.98	.000			
June 3, 13.3	— 6.14	+ .020			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1850.				s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s	s.	
June 3	1	α^2 Libræ	E.	34.74	38.76	42.71	47.10	51.20	42 42.91	+ 0.08	. . .	6.11	14 42 36.88	— 1.84	R
	2	β Ursæ Minoris	- - -	49.00	3.10	18.79	34.00	49.65	51 18.91	+ 2.13	. . .	6.11	14 51 14.93	3.01	
	3	Lupi, (5009)	- - -	25.62	30.40	34.84	39.68	44.03	5 34.91	— 0.15	. . .	6.10	15 5 28.66	2.20	
	4	β Libræ	- - -	55.80	0.00	4.00	8.10	12.00	9 3.98	+ 0.17	. . .	6.10	15 8 58.05	1.82	
	5	α Coronæ Borealis	- - -	18.14	22.80	27.21	31.80	36.37	28 27.26	0.56	. . .	6.09	15 28 21.73	1.69	
	6	α Serpentis	- - -	52.30	56.46	0.45	4.17	8.20	37 0.32	0.32	. . .	6.09	15 36 54.56	1.75	
	7	ζ Ursæ Minoris	- - -	0.50	19.75	39.29	59.00	18.30	49 39.37	2.66	. . .	6.09	15 49 35.94	4.66	
	8	β^1 Scorpii	- - -	42.80	47.00	51.15	55.40	59.60	56 51.19	0.03	. . .	6.09	15 56 45.13	2.07	
	9	2418, Groombridge	- - -	13.50	28.69	41.64	56.50	10.19	3 42.10	+ 1.97	. . .	6.06	17 3 38.01	4.11	
	10	2420, Groombridge	- - -	..	24.10	37.00	52.21	6.20	4 44.88	— 5.08	. . .	6.06	17 4 33.74	4.14	
	11	Com. star *f*. +73°35′	- - -	..	..	27.11	43.12	..	10 35.12	— 5.13	. . .	6.06	17 10 23.93	4.20	
	12	α Ophiuchi	- - -	57.54	1.55	5.70	9.85	13.80	28 5.69	+ 0.39	. . .	6.06	17 28 0.02	1.84	
	13	Sagittarii, (6080)	- - -	59.32	3.40	7.55	12 00	16.51	51 7.76	— 0.04	. . .	6.05	17 51 1.67	2.09	
	14	μ^1 Sagittarii	- - -	47.00	51.20	55.30	59.75	4.10	4 55.47	0.00	. . .	6.05	18 4 49.42	2.00	
	15	ϵ Sagittarii	- - -	11.60	16.06	21.00	26.15	30.69	14 21.10	0.21	. . .	6.04	18 14 14.85	2.19	
	16	Sagittarii, (6304)	- - -	3.25	8.00	12.00	16.39	20.80	24 12.09	0.04	. . .	6.04	18 24 6.01	2.07	
	17	Sagittarii, (6314)	- - -	21.00	25.70	30.00	34.49	39.00	25 30.04	— 0.04	. . .	6.04	18 25 23.96	2.07	
	18	α Lyræ	- - -	48.50	54.00	59.50	4.09	9.00	31 58.92	+ 0.71	. . .	6.04	18 31 53.59	— 1.99	
4	19	Polaris, S. P.	- - -	16.44	2.69	49.07	35.69	22.15	59 49.31	+ 316.48	. . .	5.99	13 4 54.30	+ 5.83	K.
	20	Polaris, S. P.	W.	49.79	37.17	24.32	11.80	57.52	5 24.12	— 29.32					
	21	η Ursæ Majoris	- - -	30.68	36.89	43.69	49.41	55.60	41 43.25	+ 1.32	. . .	5.98	13 41 28.59	— 1.24	
	22	η Bootis	- - -	30.74	34.63	39.12	43.13	47.46	47 39.02	0.79	. . .	5.98	13 47 33.83	1.30	
	23	ϵ Bootis	- - -	23.50	28.00	32.61	37.09	41.71	38 32.58	0.90	. . .	5.97	14 38 27.51	1.50	
	24	α^2 Libræ	- - -	34.20	38.44	42.73	46.69	51.05	42 42.62	0.44	. . .	5.97	14 42 37.09	1.84	
	25	β Libræ	- - -	55.42	59.66	3.89	7.77	11.92	9 3.73	0.50	. . .	5.97	15 8 58.26	1.82	
	26	α Serpentis	- - -	51.89	55.90	59.99	4.16	8.20	37 0.03	0.67	. . .	5.96	15 36 54.74	1.75	
	27	ζ Ursæ Minoris	- - -	58.76	18.75	39.00	57.81	17.34	49 38.33	3.72	. . .	5.96	15 49 36.09	4.61	
	28	σ^1 Scorpii	- - -	59.20	3.73	8.51	12.87	17.37	3 8.34	0.31	. . .	5.95	16 3 2.70	2.26	
	29	ϵ Scorpii	- - -	25.91	30 51	35.59	40.30	45.16	40 35.49	0.24	. . .	5.94	16 40 29.79	2.42	
	30	2411, Groombridge	- - -	56.09	9.69	24.68	38.21	52.30	59 24.13	2.74	. . .	5.94	16 59 20.93	4.07	
	31	Com. star *f*. +73°35′	- - -	58.80	12.11	26.90	40.85	55.60	10 26.85	2.79	. . .	5.93	17 10 23.71	4.19	
	32	Sagittarii, (6080)	- - -	59.00	3.13	7.70	12.00	16.49	51 7.66	0.85	. . .	5.92	17 51 2.59	2.09	
	33	γ Draconis	- - -	1.20	7.81	14.39	20.70	27.09	53 14.24	1.37	. . .	5.92	17 53 9.69	— 2.32	
5	34	β Orionis	- - -	16.18	20.29	24.52	28.40	32.56	7 24.39	0.51	. . .	5.64	5 7 19.26	+ 0.86	R.
	35†	α Canis Majoris	- - -	28.40	32.61	37.20	41.21	45.22	38 36.93	0.44	. . .	5.62	6 38 31.75	0.80	
	36†	Polaris, S. P.	- - -	22.00	2.09	42.74	23.79	2.54	59 42.63	+ 319.91	. . .	5.51	13 4 56.66	+ 5.10	
	37	Polaris, S. P.	- - -	5.71	46.00	26.00	7.20	45.90	5 26.16	— 22.80					
	38	Polaris, S. P.	E.	44.11	24.32	4.57	46.41	25.40	11 4.96	— 364.35					
	39	α Virginis	- - -	16.40	20.41	24.21	28.50	32.60	17 24.42	+ 0.15	. . .	5.51	13 17 19.06	— 1.40	
	40	η Ursæ Minoris	- - -	30.66	37.00	43.00	49.46	55.50	41 43.12	0.61	. . .	5.51	13 41 38.52	1.22	
	41	η Bootis	- - -	30.30	34.45	38.76	43.06	47.15	47 38.74	+ 0.46	. . .	5.51	13 47 33.69	1.29	
	42	θ Centauri	- - -	50.18	55.10	59.80	5.00	10.00	58 0.02	— 0.23	. . .	5.50	13 57 54.29	2.07	
	43	α Bootis	- - -	47.20	51.26	55.49	59.80	4.15	8 55.58	+ 0.47	. . .	5.50	14 8 50.55	1.35	
	44	Hydræ, (4763)	- - -	26.20	31.00	35.17	39.84	44.35	14 35.31	— 0.08	. . .	5.50	14 14 29.73	1.90	
	45	Hydræ, (4784)	- - -	23.52	27.30	31.40	36.10	40.70	19 31.74	0.11	. . .	5.50	14 19 26.13	2.00	
	46	Libræ, (4854)	- - -	32.52	37.00	41.20	45.80	50.15	34 41.33	— 0.04	. . .	5.49	14 34 35.80	1.91	
	47	α^2 Libræ	- - -	34.20	38.23	42.30	46.65	50.70	42 42.42	+ 0.08	. . .	5.49	14 42 37.01	1.83	
	48	Hydræ, (4930)	- - -	46.00	50.27	54.61	59.40	3.69	49 54.79	— 0.08	. . .	5.49	14 49 49.22	2.11	
	49	Hydræ, (4940)	- - -	9.11	13.78	18.05	22.70	27.20	53 18.17	0 08	. . .	5.49	14 53 12.60	2.13	
	50	Lupi, (5009)	- - -	25.19	30.00	34.39	39.25	44.00	5 34.57	— 0.15	. . .	5.48	15 5 28.94	2.20	
	51	β^1 Libræ	- - -	55.50	59.46	3.40	7.40	11.52	9 3.44	+ 0.17	. . .	— 5.48	15 8 58.13	— 1.83	

Date.	Clock.	Hourly rate.	VALUE OF— m.	n.	c.
h.	s.	s.	s.	s.	s.
June 3, 13.3	— 6.14	+ 0.020	E. +0.406	+ 0.624	— 0.155
			W. +0.486	+ 0.562	+ 0.105
4, 14.6	5.97	.016			
5, 13.5	— 5.51	+ .016			

35, 36. Indistinct; weather hazy.

TE.	No. for ref.	OBJECT OBSERVED.	Clamp.	I.	II.	III.	IV.	V.	Mean.	Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
		TIMES OF TRANSIT OVER WIRES.								CORRECTIONS FOR—					
50.				s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h m. s.	s.	
e 5	1	α Serpentis - - -	E.	51.70	55.80	59.62	3.83	7.90	36 59.77	+ 0.33	- - -	— 5.48	15 36 54.62	— 1.75	B.
	2	ζ Ursæ Minoris - -	- - -	0.25	19.11	38.60	59.00	19.00	49 39.19	2.66	- - -	5.48	15 49 36.37	4.59	
	3	δ Ophiuchi - - -	- - -	28.32	32.31	36.29	40.53	44.42	6 36.37	+ 0.22	- - -	5.47	16 6 31.12	1.88	
	4	α Scorpii - - - -	- - -	11.90	16.10	20.41	25.30	29.70	20 20.68	— 0.07	- - -	5.47	16 20 15.14	2.23	
	5	ε Scorpii - - - -	- - -	25.80	30.49	35.02	40.15	44.90	40 35.27	— 0.20	- - -	5.47	16 40 29.60	2.42	
	6	Com. star *g*. +73°9′	- - -	17.00	31.45	44.10	58.20	12.30	56 44.61	+ 1.99	- - -	5.46	16 56 41.14	3.97	
	7	α Ophiuchi - - -	- - -	57.00	1.00	5.00	9.40	13.27	28 5.13	0.39	- - -	5.45	17 28 0.07	1.86	
	8†	μ^1 Sagittarii - - -	- - -	46.43	50.60	55.49	59.40	3.50	4 55.08	0.00	- - -	5.44	18 4 49.64	2.0[illegible]	
	9	α Lyræ - - - - -	- - -	48.00	53.20	58.00	3.25	8.30	31 58.15	0.71	- - -	5.43	18 31 53.43	— 2.02	
7	10	α Canis Majoris - -	- -	27.85	32.10	36.00	40.50	44.51	38 36.19	0.07	- -	4.82	6 38 31.44	+ 0.80	
	11	Venus, 1st L. - -	- - -	40.38	44.88	49.26	53.89	58.33	49 49.35	0.52	+ 0.41	4.82	6 49 45.46	- - -	
	12	α Canis Minoris - -	- - -	22.74	27.00	30.70	35.00	39.50	31 30.89	0.32	- - -	4.81	7 31 26.40	0.55	
	13	β Geminorum - - -	- - -	2.20	6.57	11.19	15.83	20.41	36 11.24	+ 0.57	- - -	4.81	7 36 7.00	+ 0.68	
	14	Hydræ, (4784) - -	- - -	22.00	26.30	30.74	35.60	40.10	19 30.95	— 0.11	- - -	4.75	14 19 26.09	— 1.99	
	15	Libræ, (4854) - -	- - -	31.81	36.23	40.44	45.20	49.50	34 40.64	— 0.04	- - -	4.75	14 34 35.85	1.89	
	16	ε Bootis - - - - -	- - -	22.70	27.29	31.75	36.40	41.00	38 31.84	+ 0.56	- - -	4.75	14 38 27.65	1.48	
	17	α^2 Libræ - - - - -	- - -	33.39	37.70	41.61	45.90	50.00	42 41.72	+ 0.08	- - -	4.74	14 42 37.0[illegible]	1.83	
	18	Libræ, (4913) - -	- - -	36.00	40.40	44.70	49.18	53.65	45 44.79	— 0.04	- - -	4.74	14 45 40.01	1.99	
	19	β Libræ - - - - -	- - -	54.75	58.69	2.55	6.89	11.00	9 2.78	+ 0.17	- - -	4.74	15 8 58.21	1.83	
10	20	α Virginis - - - -	- - -	15.12	19.29	23.28	27.60	31.61	17 23.38	0 15	- - -	4.51	13 17 19.02	1.37	
	21	η Ursæ Majoris - -	- - -	29.81	35 90	42.00	48.49	54.61	41 42.16	0.91	- - -	4.50	13 41 38.57	1.14	
	22	η Bootis - - - - -	- - -	29.21	33.51	37.56	41.90	46.19	47 37.67	+ 0.46	- - -	4.50	13 47 33.63	1.26	
	23	θ Centauri - - - -	- - -	48.90	54.00	58.79	4.00	8.90	57 58.92	— 0.23	- - -	4.50	13 57 54.19	2.05	
	24	Hydræ, (4711) - -	- - -	36.80	41.10	45.50	50.20	54.61	4 45.64	— 0.07	- - -	4.50	14 4 41.07	1.84	
	25	α Bootis - - - - -	- - -	46.00	40.23	54.50	58.81	3.00	8 54.51	+ 0.47	- - -	4.50	14 8 50.48	1.32	
	26	Hydræ, (4763) - -	- - -	25.22	29.78	34.20	38.85	43.36	14 34.28	— 0.08	- - -	4.50	14 14 29.70	1.87	
	27	Hydræ, (4784) - -	- - -	21.35	25.85	30.45	35.20	39.60	19 30.49	0.11	- - -	4.50	14 19 25.88	1.98	
	28	Libræ, (4854) - -	- - -	31.55	36.00	40.29	44.79	49.19	34 40.36	— 0.04	- - -	4.49	14 34 35.83	1.89	
	29	ε Bootis - - - - -	- - -	22.19	27.00	31.50	36.09	40.50	38 31.44	+ 0.56	- - -	4.49	14 38 27.51	1.47	
	30	Libræ, (4913) - -	- - -	44.90	49.14	53.70	58.46	2.90	49 53.82	— 0.04	- - -	4.49	14 49 49.29	1.99	
	31	Hydræ, (4940) - -	- - -	8.20	12.70	17.10	22.00	26.40	53 17.28	0.08	- - -	4.49	14 53 12.71	2.10	
	32	Lupi, (5009) - - -	- - -	24.19	28.90	33.38	38.09	42.72	5 33.46	— 0.15	- - -	4.49	15 5 28.82	2.22	
	33	β Libræ - - - - -	- - -	54.39	58.39	2.40	6.69	10.50	9 2.47	+ 0.17	- - -	4.49	15 8 58.15	1.83	
	34	α Coronæ Borealis -	- - -	16.69	21.31	25.79	30.38	--	28 23.54	2.82	- - -	4.49	15 28 21.87	1.68	
	35	α Serpentis - - -	- - -	50.70	54.75	58.70	3.00	6.70	36 58.77	0.33	- - -	4.48	15 36 54.62	1.76	
	36	ζ Ursæ Minoris - -	- - -	58.69	18.00	37.55	57.68	17.00	49 37.78	2.66	- - -	4.48	15 49 35.96	4.38	
	37	β^1 Scorpii - - - -	- - -	41.20	45.70	29.90	54.00	58.42	56 49.84	0.03	- - -	4.48	15 56 45.39	2.10	
	38	Comet 1850, I. - -	- - -	1.80	14.90	--	--	--	16 8.35	20.65	- - -	4.48	16 16 24.52	- - -	
	39	α Herculis - - - -	- - -	46.22	50.44	54.20	58.60	2.80	7 54.45	0.41	- - -	4.47	17 7 50.39	1.90	
	40	α Ophiuchi - - - -	- - -	56.20	0.40	4.20	8.41	12.60	28 4.36	+ 0.39	- - -	4.47	17 28 0.28	1.92	
	41	Serpentis, (6066) -	- - -	55.29	59.80	4.00	8.69	13.00	48 4.16	— 0.04	- - -	4.46	17 47 59.66	2.19	
	42	μ^1 Sagittarii - - -	- - -	45.59	49.80	54.00	58.60	2.76	4 54.15	0.00	- - -	4.46	18 4 49.69	2.12	
	43	δ Ursæ Minoris - -	- - -	44.50	51.50	57.00	6.00	12.50	20 58.30	+ 8.30	- - -	4.46	18 21 2.14	19.08	
	44	α Lyræ - - - - -	- - -	47.20	52.40	57.49	2.61	7.75	31 57.49	0.71	- - -	4.45	18 31 53.75	2.12	
	45	β^1 Lyræ - - - - -	- - -	29.00	33.70	38.40	43.20	48.15	44 38.49	0.63	- - -	4.45	18 44 34.67	2.01	
11	46	ε Bootis - - - - -	- - -	22.19	26.78	31.00	35.80	40.00	38 31.15	0.56	- - -	4.25	14 38 27.46	1.46	K.
	47	α Coronæ Borealis -	- - -	16.78	21.15	25.55	30.40	34.58	28 25.69	0.56	- - -	4.24	15 28 22.01	1.68	
	48	ζ Ursæ Minoris - -	- - -	59.26	17.09	35.32	56.77	17.89	49 37.36	2.66	- - -	4.23	15 49 35.79	4.33	
	49	Com. star *a*. +73°36	- - -	20.20	35.00	48.00	2.55	17.10	17 48.17	1.99	- - -	4.20	17 17 46.36	— 3.96	
12	50	α Canis Majoris - -	- - -	27.00	31.19	35.01	39.51	43.80	38 35.30	0.07	- - -	3.89	6 38 31.48	+ 0.80	B.
	51	α Canis Minoris - -	- - -	21.78	25.80	29.73	34.00	38.00	31 29.86	0.32	- - -	3.88	7 31 26.30	0.56	
	52	β Geminorum - - -	- - -	1.20	5.70	10.26	15.00	19.59	36 10.35	+ 0.57	- - -	— 3.88	7 36 7.04	+ 0.69	

8. Very unsteady.

Date.	Clock.	Hourly rate.	VALUE OF *m*.	VALUE OF *n*.	VALUE OF *c*.
h.	s.	s.	s.	s.	s.
June 5, 13.5	— 5.51	+ 0.016	E. +0.406	+ 0.624	— 0.155
			W. +0.486	+ 0.562	+ 0.105
7, 11.0	4.78	.010			
10, 16.0	4.48	.010			
11, 15.0	4.24	.016			
12, 13.3	— 3.75	+ .022			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1850.				s.	s.	s.	s.	s	m. s.	m. s.	s.	s.	h. m. s.	s.	
June 12	1	α Virginis - - - -	E.	14.60	18.70	22.60	26.90	31.00	17 22.76	+ 0.15	- - -	— 3.75	13 17 19.16	— 1.35	B.
	2	α Bootis - - - - -	- -	45.20	49.51	53.60	58.00	2.33	8 53.73	0.47	- - -	3.73	14 8 50.47	1.30	
	3	ε Bootis - - - - -	- - -	21.60	26.22	30.50	35.40	40.50	38 30.74	0.56	- - -	3.72	14 38 27.58	1.45	
	4	α^2 Libræ - - - - -	- - -	32.41	36.51	40.65	45.00	49.10	42 40.73	0.08	- - -	3.72	14 42 37.09	1.82	
	5	β Libræ - - - - -	- - -	53.72	57.74	1.51	5.82	9.00	9 1.74	0.17	- - -	3.71	15 8 58.20	1.83	
	6	α Coronæ Borealis -	- - -	16.00	20.50	25.00	29.60	34.00	28 25.02	0.56	- - -	3.70	15 28 21.88	1.67	
	7	α Serpentis - - - -	- - -	50.00	54.00	58.00	2.00	6.11	36 58.02	0.33	- - -	3.70	15 36 54.65	1.76	
	8	ζ Ursæ Minoris - -	- - -	58.00	17.00	37.20	56.49	15.76	49 36.89	+ 2.66	- - -	3.70	15 49 35.85	4.28	
	9	Com. star *l*. +70°7′	- - -	..	33.80	45.00	57.60	9.51	58 51.48	— 4.25	- - -	3.69	15 58 43.54	2.99	
	10	Com star *m*. +70 8	- - -	24.44	35.20	47.50	59.40	11.90	59 47.59	+ 1.69	- - -	3.69	15 59 45.59	3.00	
	11	Com. star *i*. +71 19	- - -	..	48.00	0.40	13.35	25.51	16 6.82	— 4.49	- - -	3.68	16 15 58.65	3.30	
	12	2356, Groombridge	- - -	39.00	51.65	3.70	17.92	30.45	27 4.54	+ 1.80	- - -	3.68	16 27 2.66	3.47	
	13	α Herculis - - - -	- - -	45.40	49.50	53.50	58.00	1.90	7 53.66	0.41	- - -	3.67	17 7 50.40	1.91	
	14	Com. star *a*. +76°36′	- - -	20.00	33.55	48.40	4.41	16.45	17 48.56	1.99	- - -	3.67	17 17 46.88	3.98	
	15	α Ophiuchi - - - -	- - -	55.19	59.05	3.29	7.60	12.00	28 3.43	0.39	- - -	3.66	17 28 0.16	1.94	
13	16	η Ursæ Majoris - -	W.	28.00	34.00	40.30	46.39	53.00	41 40.34	1.32	- - -	3.14	13 41 38.52	1.08	
	17	η Bootis - - - - -	- - -	27.54	31.69	36.20	40.41	44.50	47 36.07	0.79	- - -	3.14	13 47 33.72	1.23	
	18	α Bootis - - - - -	- - -	44.20	48.40	53.00	57.14	1.30	8 52.81	0.80	- - -	3.13	14 8 50.48	1.29	
	19	ε Bootis - - - - -	- - -	20.69	25.13	29.68	34.25	38.80	38 29.71	0.90	- - -	3.11	14 38 27.50	1.44	
	20	α^2 Libræ - - - - -	- - -	31.46	35.40	40.00	44.00	48.10	42 39.79	0.44	- - -	3.11	14 42 37.12	1.82	
	21	β Ursæ Minoris - -	- - -	44.00	58.61	14.49	29.50	45.00	51 14.32	2.97	- - -	3.11	14 51 14.18	2.55	
	22	Lalande, 27837 - -	- - -	42.00	46.18	50.47	54.60	59.00	9 50.45	0.39	- - -	3.10	15 9 47.74	2.03	
	23	Lalande, 27852 - -	- - -	1.40	5.76	10.20	14.32	18.72	10 10.08	0.39	- - -	3.10	15 10 7.37	2.03	
	24	Lalande, 28090 - -	- - -	21.42	25.78	30.00	34.40	38.56	17 30.03	0.39	- - -	3.09	15 17 27.33	2.06	
	25	Lalande, 28251 - -	- - -	22.90	27.10	31.51	35.82	40.30	23 31.53	0.38	- - -	3.09	15 23 28.82	2.10	
	26	α Coronæ Borealis -	- - -	15.00	19.49	24.29	28.50	33.18	28 24.09	0.89	- - -	3.09	15 28 21.89	1.67	
	27	α Serpentis - - - -	- - -	49.00	53.00	57.15	1.11	5.10	36 57.07	0.67	- - -	— 3.08	15 36 54.66	1.76	
19	28	α Virginis - - - -	- - -	6.54	10.50	15.00	18.71	22.80	17 14.71	0.49	- - -	+ 3.90	13 17 19.10	1.29	
	29	η Ursæ Majoris - -	- - -	20.50	26.79	33.15	39.30	45.56	41 33.06	1.32	- - -	3.92	13 41 38 30	0.97	
	30	η Bootis - - - - -	- - -	20.51	24.70	29.00	33.14	37.42	47 28.95	0.79	- - -	3.92	13 47 33.66	1.18	
	31	κ Virginis - - - -	- - -	43.00	47.00	51.20	55.20	59.35	4 51.15	0.49	- - -	3.95	14 4 55.59	1.54	
	32	ι Virginis - - - -	- - -	58.20	2.15	6.30	10.11	14.35	8 6.22	0.54	- - -	3.95	14 8 10.71	1.50	
	33	Moon, 1st L. - - -	- - -	3.58	7.82	12.12	16.00	20.11	23 11.93	0.49	+ 64.15	3.97	14 24 20.54	- - -	
	34	ε Bootis - - - - -	- - -	13.61	18.00	22.52	27.10	31.80	38 22.61	0.90	- - -	3.98	14 38 27.49	1.40	
	35	α^2 Libræ - - - - -	- - -	24.30	28.32	32.71	37.50	41.00	42 32.67	0.44	- - -	3.98	14 42 37.09	1.79	
	36	ξ^2 Libræ - - - - -	- - -	27.21	31.39	35.50	39.53	43.70	48 35.47	0.48	- - -	3.98	14 48 39.93	1.76	
	37	Comet 1850, I - -	- - -	5.69	15.31	25.50	33.00	42.00	16 24.30	1.94	- - -	4.02	15 16 30.26	- - -	
	38†	α Coronæ Borealis -	- - -	7.90	12.20	17.10	21.60	25.78	28 16.92	0.89	- - -	4.02	15 28 21.83	1.64	
	39	α Serpentis - - - -	- - -	41.79	45.85	50.00	54.00	58.20	36 49.97	+ 0.67	- - -	4.03	15 36 54.67	1.76	
	40	ε Ursæ Minoris - -	E.	..	1.00	30.27	1.20	30.49	1 45.74	— 11.00	- - -	4.12	17 1 38.86	7.44	
	41	α Herculis - - - -	- - -	37.57	41.70	45.55	50.00	54.10	7 45.77	+ 0.41	- - -	4.12	17 7 50.30	1.96	
	42	α Ophiuchi - - - -	- - -	47.60	51.71	55.50	59.90	4.00	27 55.74	0.39	- -	4.15	17 28 0.28	1.99	
24	43	α Bootis - - - - -	- - -	29.18	33.28	37.40	41.90	46.18	8 37.59	+ 0.47	- - -	12.22	14 8 50.28	1.20	K.
	44	Hydræ, (4763) - -	- - -	.47	.00	.19	.00	.30	14	— 0.08	- - -	12.22	14	1.83	
	45	Libræ, (4854) - -	- - -	14.70	19.13	23.47	27.85	32.34	34 23.50	— 0.04	- - -	12.26	14 34 35.72	1.87	
	46	α^2 Libræ - - - - -	- - -	16.34	20.59	24.53	28.73	32.91	42 24.62	+ 0.08	- - -	12.26	14 42 36.96	1.77	
	47	Comet 1850, I - -	- - -	10.93	..	27.19	34.79	42.00	49 28.73	— 1.24	- - -	12.27	14 49 39.76	- - -	
	48	Com. star *r*. +64°54′	- - -	44.62	54.22	3.56	13.49	23.20	18 3.82	+ 1.94	- - -	12.31	15 18 18.07	1.89	
	49	α Coronæ Borealis -	- - -	59.70	4.32	8.51	13.20	17.82	28 8.71	0.56	- - -	12.33	15 28 21.60	1.61	
	50	α Serpentis - - - -	- - -	33.70	37.78	41.72	46.00	50.00	36 41.84	0.33	- - -	12.34	15 36 54.51	1.74	
	51	ζ Ursæ Minoris - -	- - -	40.87	0.30	19.47	40.19	59.35	49 20.04	2.66	- - -	12.36	15 49 35.06	3.61	
	52	Com. star *l*. + 70°7′	- - -	5.56	17.51	28.91	41.63	53.28	58 29.38	+ 1.68	- - -	+ 12.37	15 58 43.43	— 2.65	

Date.	Clock.	Hourly rate.	VALUE OF *m*.	*n*.	*c*.
h.	s.	s.	s.	s.	s.
June 12, 13.3	— 3.75	+ 0.022	E. +0.406	+ 0.624	— 0.155
			W. +0.486	+ 0.562	+ 0.105
13, 14.7	— 3.11	.030			
19, 15.3	+ 4.02	.058			
24, 16.4	+ 12.40	+ .080			

38. Stars unsteady during the remainder of the night.

TE.	No. for ref.	OBJECT OBSERVED.	Clamp.	I.	II.	III.	IV.	V.	Mean	Inst.	Semi-diam.	Clock.	Observed R Ascension.	Reduct'n to 1850.0	Observer.
			TIMES OF TRANSIT OVER WIRES.							CORRECTIONS FOR—					
50				s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
e 24	1	Com. star m+70° 8′	E.	7.52	19.90	31.21	. .	55.28	59 28.48	+ 4.69	. . .	+ 12.37	15 59 45.54	— 2.66	K.
	2	δ Ophiuchi . . .	. . .	10.46	14.40	18.35	22.70	26.41	6 18.46	0.22	. . .	12.38	16 6 31.06	1.93	
	3	μ^1 Sagittarii . . .	W.	28.29	32.78	37.14	41.70	45.68	4 37.12	0.39	. . .	12.54	18 4 50.05	2.32	
	4	α Lyræ	. . .	30.24	35.12	40.48	45.60	50.74	31 40.44	1.07	. . .	12.57	18 31 54.08	2.27	
	5	Moon, 2d L. . .	. . .	49.00	55.07	57.71	1.81	6.25	45 57.57	0.40	— 65.16	12.59	18 45 4.40	. . .	
	6	ϵ Sagittarii . . .	. . .	22.84	27.00	31.18	35.61	39.80	55 31.29	0.38	. . .	12.60	18 55 44.27	2.26	
	7	ζ Aquilæ	. . .	11.59	15.71	19.73	25.87	28.24	58 19.83	0.74	. . .	12.60	18 58 33.17	2.06	
	8	π Sagittarii . . .	. . .	31.41	35.66	40.00	44.32	48.71	0 40.02	0.39	. . .	12.61	19 0 53.02	2.24	
25	9†	α Bootis	. . .	26.48	31.00	35.49	39.50	43.54	8 35.20	0.80	. . .	14.34	14 8 50.34	1.19	B.
	10	Comet 1850, I. . .	. . .	12.45	19.69	29.20	35.20	42.65	43 27.44	1.59	. . .	14.40	14 43 43.43	. . .	
	11	α Coronæ Borealis .	. . .	57.40	1.81	6.40	11.00	15.51	28 6.42	0.89	. . .	14.47	15 28 21.78	1.60	
	12	α Serpentis . . .	. . .	31.41	35.53	39.61	43.55	47.60	36 39.54	0.67	. . .	14.48	15 36 54.69	1.74	
	13	δ Ophiuchi . . .	. . .	8.11	12.00	16.25	20.10	24.10	6 16.11	0.56	. . .	14.52	16 6 31.19	1.93	
	14†	α Scorpii	. . .	51.60	56.00	0.50	5.00	9.42	20 0.50	0.33	. . .	14.54	16 20 15.37	2.33	
26	15	Com star r+64° 54′	E.	39.80	49.92	38.86	8.80	18.00	17 59.07	1.39	. . .	16.70	15 18 17.16	1.83	K.
	16	Lalande, 28251 .	. . .	3.42	7.67	11.89	16.33	20.69	23 12.00	0.00	. . .	16.71	15 23 28.71	2.06	
	17	α Serpentis . . .	. . .	29.40	33.58	37.49	41.71	45.64	36 37.56	0.33	. . .	. . .	. . . .	1.74	
	18	ζ Ursæ Minoris . .	. . .	35.89	55.73	15.21	35.00	54.69	49 15.30	+ 2.66	. . .	16.75	15 49 34.71	3.47	
29	19	ϵ Scorpii	. . .	56.40	11.42	6.00	11.05	15.81	40 6.14	— 0.20	. . .	23.61	16 40 29.55	2.50	B.
	20	ϵ Ursæ Minoris . .	. . .	11.00	41.10	9.68	41.00	10.20	1 10.60	+ 3.87	. . .	23.63	17 1 38.10	6.76	
	21	A Ophiuchi . . .	. . .	37.50	41.69	46.00	50.62	55.00	5 46.16	— 0.08	. . .	23.63	17 6 9.71	2.44	
	22	θ Ophiuchi . . .	. . .	17.71	22.19	26.42	31.10	35.40	12 26.56	— 0.05	. . .	23.64	17 12 50.15	2.41	
	23	μ^1 Sagittarii . . .	. . .	17.58	22.00	26.00	30.30	34.60	4 26.10	0.00	. . .	23.72	18 4 49.82	2.37	
	24	δ Ursæ Minoris . .	. . .	16.80	25.00	30.00	38.20	. .	19 57.50	+ 42.26	. . .	23.74	18 21 3.50	18.50	
	25	α Lyræ	. . .	19.29	24.15	29.30	34.60	39.50	31 29.37	0.71	. . .	23.76	18 31 53.84	2.31	
	26	β^1 Lyræ	. . .	1.00	5.50	10.28	15.00	20.00	44 10.36	0.63	. . .	23.78	18 44 34.77	2.24	
y 1	27	ϵ Bootis	. . .	50.32	55.00	59.45	4.00	8.20	37 59.39	0.56	. . .	27.20	14 38 27.15	1.28	
	28	α^2 Libræ	. . .	1.00	5.00	9.20	13.60	17.68	42 9.30	+ 0.08	. . .	27.20	14 42 36.58	1.72	
	29	Comet star . . .	. . .	. .	57.00	5.15	13.15	21.05	51 9.09	— 2.75	. . .	27.22	14 51 33.56	1.32	
	30	Comet star s+59° 7′	. . .	46.46	54.22	2.00	10.08	17.80	53 2.11	+ 1.15	. . .	27.22	14 53 30.48	1.32	
	31	Comet star t+59° 8′	. . .	. .	. .	. .	23.55	31.27	53 27.41	— 10.68	. . .	27.22	14 53 43.95	1.32	
	32	Iris	. . .	49.00	53.41	57.70	2.00	6.05	59 57.63	+ 0.03	. . .	27.22	15 0 24.88	. . .	
	33	ι^1 Libræ	. . .	6.70	11.00	15.00	19.40	23.60	3 15.14	+ 0.03	. . .	27.22	15 3 42.39	1.89	
	34	ψ^1 Lupi	. . .	40.31	45.15	49.81	54.80	59.70	29 49.95	— 0.20	. . .	27.25	15 30 17.00	2.23	
	35	ψ^2 Lupi	. .	33.40	38.20	43.00	48.05	53.00	32 43.13	— 0.20	. . .	27.25	15 33 10.18	2.36	
	36	α Serpentis . . .	. . .	18.80	22.80	26.67	30.80	34.60	36 26.73	+ 0.33	. . .	27.26	15 36 54.32	1.71	
	37	ζ Ursæ Minoris . .	. . .	26.00	46.00	4.80	25.20	45.60	49 5.52	2.66	. . .	27.28	15 49 35.46	3.11	
	38	Com. star o+69° 38′	. . .	43.40	54.60	6.20	18.00	29.00	59 6.24	+ 1.68	. . .	27.29	15 59 35.21	2.33	
	39	Com. star p+69 39	. . .	. .	. .	. .	39.40	51.10	59 45.25	— 15.80	. . .	27.29	15 59 56.74	2.33	
	40	Anonym's —24 44	. . .	9.00	13.38	17.81	22.30	26.84	6 17.87	0.05	. . .	27.30	16 6 45.12	2.25	
	41	α Scorpii	. . .	38.80	43.17	47.32	52.18	56.70	19 47.63	0.07	. . .	27.31	16 20 14.87	2.33	
	42	ϵ Scorpii	. . .	52.30	57.20	2.09	7.30	12.00	40 2.18	— 0.20	. . .	27.33	16 40 29.31	2.50	
	43	α Herculis . . .	. . .	14.21	18.21	22.41	26.69	30.72	7 22.45	+ 0.41	. . .	27.36	17 7 50 22	1.99	
	44	α Ophiuchi . . .	. . .	24.20	28.00	32.35	36.60	40.60	27 32.35	0.39	. . .	27.39	17 28 0 13	2.05	
	45	μ^1 Sagittarii . . .	. . .	13.50	18.00	22.50	26.38	30.69	4 22.11	0.00	. . .	27.43	18 4 49 54	2.39	
	46	δ Ursæ Minoris . .	. . .	14.00	20.00	29.20	36.30	42.25	20 28.37	8.30	. . .	27.45	18 21 4.12	18.36	
	47	α Lyræ	. . .	15.00	20.35	25.23	30.57	35.60	31 25.35	0.71	. . .	27.46	18 31 53.52	2.32	
	48	ζ Aquilæ	. . .	56.59	0.90	4.80	9.18	13.20	58 4.93	0.40	. . .	27.50	18 58 32.83	2.15	
	49	δ Aquilæ	. . .	22.23	26.00	30.00	34.00	38.00	17 30.05	+ 0.29	. . .	27.51	19 17 57.85	— 2.14	
	50	Hygea?	. . .	14.70	19.00	25.00	28.00	31.70	25 23.28	— 0.01	. . .	27.52	19 25 50.79	. . .	
2	51†	β Orionis	. . .	40.41	44.49	48.51	52.70	56.72	6 48.57	+ 0.17	. . .	30.66	5 7 19.40	+ 0.49	
	52†	β Tauri	. . .	8.00	12.61	17.00	21.80	26.79	16 17.24	+ 0.57	. . .	+ 30.68	5 16 48.49	+ 0.36	

9, 14. Stars very unsteady.
51, 52. Unsteady.

Date.	Clock.	Hourly rate.	VALUE OF m	VALUE OF n.	VALUE OF c.
h.	s.	s.	s.	s.	s.
June 24, 16.4	+ 12.40	+ 0.080	E. +0.406	+ 0.624	— 0.155
			W. +0.486	+ 0.562	+ 0.105
25, 15.5	14.47	.090			
26, 15.6	16.73	.096			
29, 18.4	23.75	.085			
July 1, 17.0	27.36	.068			
2, 5.7	+ 30.70	+ 0.060			

DATE.	No. for ref.	OBJECT OBSERVED	TIMES OF TRANSIT OVER WIRES. Clamp.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1850.				s.	s.	s.	s	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
July 2	1	δ Orionis	E.	- -	- -	- -	53.39	57.52	23 55.46	— 5.81	- - -	+ 30.68	5 24 20.33	+ 0.45	B.
	2†	α Orionis	- - -	23.60	27.69	31.50	36.00	39.60	46 31.68	+ 0.33	- - -	30.70	5 47 2.71	0.44	
	3	α Canis Majoris	- - -	52.40	56.74	0.40	5.05	9.30	38 0.78	0.08	- - -	30.75	6 38 31.61	0.69	
4	4	β Orionis	- - -	38.24	42.20	46.30	50.48	54.55	6 46.35	0.17	- - -	32.87	5 7 19.39	0.45	
	5	β Tauri	- - -	6.00	10.49	15.00	19.80	24.20	16 15.10	0.57	- - -	32.87	5 16 48.54	0.32	
	6†	δ Orionis	- - -	38.90	43.08	47.00	51.22	55.30	23 47.10	0.26	- - -	32.88	5 24 20.24	0.41	
	7†	ε Orionis	- - -	54.60	58.33	2.51	6.80	10.40	28 2.53	0.25	- - -	32.88	5 28 35.66	0.42	
	8	α Orionis	- - -	21.41	25.40	29.40	33.70	37.80	46 29.54	0.33	- - -	32.89	5 47 2.76	0.41	
	9	α Canis Majoris	- - -	49.90	54.17	58.16	2.55	6.71	37 58.30	0.08	- - -	32.92	6 38 31.30	+ 0.66	
5	10	Venus, 1st L.	- - -	32.70	36.80	40.69	45.40	49.61	11.41.04	0.45	+ 0.44	33.58	9 12 15 51	- - -	
	11	Polaris, S. P.	- - -	53.20	33.00	14.00	55.80	36.00	59 14.40	+ 329.24	- - -	33.66	13 5 16.20	— 19.03	
	12	Polaris, S. P.	- - -	10.78	22.11	3.00	44.50	25.00	5 3.08	— 21.64					
	13	α Virginis	W.	36.75	40.80	45.00	49.00	53.00	16 44.91	+ 0.49	- - -	33.67	13 17 19.07	1.12	
	14	α Bootis	E.	7.69	11.80	16.10	20.51	25.00	8 16.22	0.47	- - -	33.68	14 8 50.37	1.08	
	15	δ Ophiuchi	- - -	49.30	53.17	57.11	1.21	5.00	5 57.16	+ 0.22	- - -	33.72	16 6 31.10	1.91	
	16	α Scorpii	- - -	32.30	37.00	41.40	45.90	50.52	19 41.42	— 0.07	- - -	+ 33.73	16 20 15.08	— 2.31	
10	17†	β Tauri	- - -	56.81	1.40	5.80	10.51	15.05	17 5.91	+ 0.57	- - -	— 17.76	5 16 48.72	+ 0.18	
	18†	α Orionis	- - -	12.00	16.18	20.20	24.19	28.48	47 20.21	0.33	- - -	17.76	5 47 2.78	0.31	
	19†	α Canis Majoris	- - -	41.00	45.00	49.35	53.40	57.73	38 49.30	0.08	- - -	17.76	6 38 31.62	+ 0.60	
11	20	Venus, 1st L.	- - -	43.80	48.00	52.50	56.30	0.50	40 52.12	0.42	0.44	17.76	9 40 35.22	. . .	
	21†	α Virginis	- - -	31.40	35.60	39.50	44.00	48.00	17 39.70	0.15	- - -	20.91	13 17 18.94	— 1.06	
	22	η Bootis	- - -	45.33	49.55	53.72	58.13	2.38	47 53.82	0.46	- - -	20.86	13 47 33.42	0.93	
	23	α Bootis	- - -	2.00	6.33	10.30	15.00	19.20	9 10.57	+ 0.47	- - -	20.83	14 8 50.21	1.00	
	24	c^1 Scorpii	- - -	14.00	18.80	23.10	27.80	32.48	3 23.24	— 0.10	- - -	20.63	16 3 2.51	2.26	
	25†	α Scorpii	- - -	28.90	33.33	37.75	42.10	46.50	20 37.72	0.07	- - -	20.61	16 20 17.04	2.29	
	26	ε Scorpii	- - -	41.00	45.78	50.39	55.51	0.20	39 50.58	— 0.20	- - -	20.58	16 40 29.80	2.56	
	27	α Herculis	- - -	4.10	8.31	12.37	16.70	21.00	8 12.50	+ 0.41	- - -	20.53	17 7 52.38	1 97	
	28	Ophiuchi, (5846)	- - -	45.79	50.22	54.66	59.35	3.75	12 54.75	— 0.05	- - -	20.52	17 12 34.18	2.44	
	29	υ Scorpii	- - -	49.90	54.80	59.60	4.40	9.80	20 59.70	0.26	- - -	20.51	17 20 38.93	2.77	
	30	λ Scorpii	- - -	41.08	46.10	51.10	56.05	1.00	23 51.07	— 0.26	- - -	20.50	17 23 30.31	2.78	
	31	α Ophiuchi	- - -	14.31	18.37	22.40	26.80	30.73	28 22.52	+ 0.39	- - -	20.49	17 28 2.42	2.06	
	32	Serpentis, (6066)	- - -	13.70	18.00	22.20	27.00	31.30	48 22.44	— 0.04	- - -	20.46	17 48 1.94	2.48	
	33	μ^1 Sagittarii	- - -	3.90	8.15	12.35	17.00	21.10	5 12.50	0.00	- - -	20.43	18 4 52.07	2.44	
	34	δ Ursæ Minoris	- - -	59.00	7.57	13.50	25.00	31.12	21 15.24	+ 8.30	- - -	20.40	18 21 3.14	17.01	
	35	α Lyræ	- - -	5.11	10.35	15.47	20.50	25.80	32 15.45	0.71	- - -	20.39	18 31 55.77	2.36	
	36	β Lyræ	- - -	47.00	51.67	56.31	1.20	6.32	44 56.50	0.63	- - -	20.37	18 44 36.76	2.31	
	37	ζ Aquilæ	- - -	47.08	51.00	55.50	59.20	3.36	58 55.13	+ 0.40	- - -	20.34	18 58 35.19	2.23	
	38†	Hygea	- - -	21.80	26.00	30.15	34.80	39.20	16 30.39	— 0.01	- - -	20.31	19 17 10.07	- - -	
19	39	Polaris, S. P.	- - -	44.52	21.05	6.00	49.10	36.20	6 7.37	— 18.45	- - -	13.54	13 5 35.38	30.50	
	40	α Virginis	- -	27.60	29.70	32.00	34.00	36.00	17 31.86	+ 0.34	- - -	13.53	13 17 18.67	0.97	
	41	Moon, 1st L.	- - -	23.40	25.60	28.00	30.00	32.50	41 27.90	0.27	+ 64.90	13.06	16 42 20.01	- - -	
	42	η Ophiuchi	- - -	57.41	59.60	1.80	4.00	6.00	2 1.76	0.29	- - -	13.02	17 1 49.03	2.20	
	43	α Herculis	- - -	58.50	1.00	2.80	5.00	7.00	8 2.86	0.56	- - -	13.01	17 7 50.41	1.93	
	44	θ Ophiuchi	- - -	58.80	1.00	3.20	5.60	7.72	13 3.26	0.19	- - -	13.00	17 12 50.45	2.40	
	45	α Ophiuchi	- - -	8.80	10.80	12.70	14.60	16.80	28 12.74	0.55	- - -	12.95	17 28 0.34	2.03	
	46	μ^1 Sagittarii	- - -	58.52	0.55	2.57	4.70	7.00	5 2.67	0.23	- - -	12.87	18 4 50.03	2.46	
	47	δ Ursæ Minoris	- - -	55.70	30.80	3.80	38.50	11.00	21 3.86	8.37	- - -	12.85	18 20 59.38	15.69	
	48	α Lyræ	- - -	0.50	3.18	6.00	8.40	11.00	32 5.82	0.83	- - -	12.82	18 31 53.83	2.34	
	49	β Lyræ	- - -	42.00	44.40	47.00	49.13	51.51	44 46.81	0.76	- - -	12.79	18 44 34.78	2.31	
	50	ζ Aquilæ	- - -	41.22	43.40	45.58	47.45	49.50	58 45.43	0.55	- - -	12.76	18 58 33.22	2.27	
	51	Hygea?	- - -	6.23	8.58	10.50	13.00	15.00	10 10.66	0.22	- - -	12.73	19 9 58.15	- - -	
	52	δ Aquilæ	- - -	6.48	8.50	10.50	12.55	14.60	18 10.53	+ 0.46	- - -	— 12.72	19 17 58.27	— 2.31	

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
July 2, 5.7	+ 30.70	+ 0.060	E. +0.406	+ 0.624	— 0.155
			W. +0.486	+ 0.562	+ 0.105
4, 5.4	32.88	.036			
5, 15.0	+ 33.70	.020			
10, 5.9	— 17.76	.000			
11, 16.6	20.58	.098			
19, 18.2	— 12.86	+ 6.134	+ 0.483	+ 0.518	— 0.049

July 19. Commenced observing with new diaphragm.

2, 6, 7. Extremely unsteady.
17, 18, 19. Very unsteady.
21, 38. Bad night for observing; stars unsteady and flaring.
25. All the wires increased 2s.

ATE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0.	Observer.
850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
ly 19	1	γ Aquilæ	E.	--	18.00	20.00	22.00	24.15	26.12	39 22.05	+ 0.52	- - -	— 12.66	19 39 9.91	— 2.31	B.
	2	α Aquilæ	--	--	38.28	40.38	42.30	44.22	46.30	43 42.30	0.50	- - -	12.66	19 43 30.14	2.32	
	3	β Aquilæ	--	--	7.00	9.25	11.20	13.20	15.00	48 11.13	0.48	- - -	12.65	19 47 58.96	2.31	
20	4	α Scorpii	--	--	21.00	23.10	25.40	27.71	29.88	20 25.42	0.24	- - -	10.35	16 20 15.31	2.23	K.
	5	ε Ursæ Minoris	--	--	11.48	26.12	41.00	56.20	11.10	1 41.18	3.95	- - -	10.27	17 1 34.95	4.55	
	6	α Herculis	--	--	55.89	58.00	0.10	2.05	4.19	8 0.05	0.56	- - -	10.26	17 7 50.35	1.93	
	7	α Ophiuchi	--	--	5.81	8.00	10.00	12.11	14.00	28 9.98	0.55	- - -	10.21	17 28 0.32	2.03	
23	8	α Ophiuchi	--	--	58.20	0.30	2.40	4.36	6.59	28 2.37	0.55	- - -	2.52	17 28 0.40	2.01	B.
	9	μ^1 Sagittarii	--	--	47.90	50.17	52.35	54.50	57.00	4 52.38	0.23	- - -	2.48	18 4 50.13	2.45	
	10	δ Ursæ Minoris	--	--	43.00	18.20	51.40	25.00	55.00	20 50.52	8.37	- - -	2.46	18 20 56.43	14.72	
	11	α Lyræ	--	--	50.00	52.80	55.40	57.75	0.50	31 55.29	0.83	- - -	2.44	18 31 53.68	2.32	
	12	β Lyræ	--	--	31.72	34.17	36.30	38.66	41.00	44 36.37	0.76	- - -	2.42	18 44 34.71	2.30	
	13	ζ Aquilæ	--	--	31.00	33.00	35.00	37.16	39.13	58 35.06	0.55	- - -	2.40	18 58 33.21	2.27	
	14	δ Aquilæ	--	--	56.28	58.40	0.40	2.30	4.30	18 0.34	0.46	- - -	2.38	19 17 58.42	2.33	
	15	h^2 Sagittarii	--	--	34.80	37.00	39.50	41.50	43.81	27 39.32	0.18	- - -	2.36	19 27 37.14	2.60	
	16	e^2 Sagittarii	--	--	56.36	58.78	1.13	2.80	5.00	34 0.81	0.28	- - -	2.36	19 33 58.73	2.49	
	17	γ Aquilæ	--	--	7.58	9.71	12.00	13.75	15.77	39 11.76	0.52	- - -	2.35	19 39 9.93	2.33	
	18	α Aquilæ	--	--	27.77	29.81	32.12	33.72	36.03	43 31.89	0.50	- - -	2.35	19 43 30.04	2.35	
	19	β Aquilæ	--	--	56.80	59.00	1.00	2.80	4.75	48 0.87	0.48	- - -	2.34	19 47 59.01	2.34	
	20	Moon, 1st L.	--	--	48.40	50.78	53.00	55.44	57.90	9 53.10	0.24	(64.44)	2.31	20 10 55.47	- - -	
	21	Moon, 2d L.	--	--	57.60	59.70	2.15	4.10	6.33	12 1.98						
24	22	α Lyræ	--	--	48.30	51.20	53.53	56.30	58.80	31 53.63	0.83	- - -	0.68	18 31 53.78	2.31	
	23	β Lyræ	--	--	29.80	32.32	34.52	37.00	39.63	44 34.65	0.76	- - -	0.67	18 44 34.74	2.29	
	24	ζ Aquilæ	--	--	29.10	31.20	33.15	35.29	37.40	38 33.23	0.55	- - -	0.65	18 58 33.13	2.27	
	25	δ Aquilæ	--	--	54.55	56.55	58.40	0.35	2.35	17 58.44	0.46	- - -	0.63	19 17 58.27	2.33	
	26	γ Aquilæ	--	--	6.00	8.00	10.05	12.00	14.35	39 10.08	0.52	- - -	0.61	19 39 9.99	2.34	
	27	α Aquilæ	--	--	26.00	28.00	30.31	32.37	34.30	43 30.20	0.50	- - -	0.59	19 43 30.11	2.35	
	28	β Aquilæ	--	--	55.20	57.00	59.00	1.00	3.00	47 59.04	0.48	- - -	0.59	19 47 58.93	2.34	
	29	α^2 Capricorni	--	--	42.47	44.40	46.50	48.48	50.35	9 46.44	0.31	- - -	0.57	20 9 46.18	2.42	
	30	β Capricorni	--	--	33.20	35.35	37.48	39.49	41.60	12 37.42	0.29	- - -	0.57	20 12 37.14	2.45	
	31	α Cygni	--	--	15.40	18.80	21.50	24.15	27.00	36 21.37	0.92	- - -	0.54	20 36 21.75	2.81	
	32	Moon, 2d L.	--	--	37.20	39.30	41.60	43.80	46.13	3 41.61	0.26	— 63.55	0.51	21 2 37.81	- - -	
	33	ζ Cygni	--	--	30.90	33.40	35.58	37.90	40.11	6 35.58	0.71	- - -	0.51	21 6 35.78	2.50	
	34	β Aquarii	--	--	37.80	40.00	42.00	43.90	45.80	23 41.90	0.38	- - -	0.49	21 23 41.79	2.27	
	35	ε Capricorni	--	--	38.55	40.90	43.00	45.05	47.20	28 42.94	0.24	- - -	0.48	21 28 42.70	2.33	
	36	κ Capricorni	--	--	14.51	16.74	19.00	21.00	23.20	34 18.89	0.24	- - -	0.47	21 34 18.66	2.29	
	37	ε Pegasi	--	--	47.22	49.38	51.40	53.20	55.30	36 51.30	0.51	- - -	— 0.47	21 36 51.34	2.27	
27	38			A.	28.61	32.38	35.62	38.80	42.35							
	39			B.	7.52	10.52	13.41	16.00	19.00							
	40	α Lyræ	--	C.	44.05	46.60	49.66	52.10	54.74	31 49.36	0.83	- -	+ 3.58	18 31 53.77	2.29	
	41			D.	19.82	22.33	25.49	28.45	31.00							
	42			E.	56.12	59.40	3.00	7.00	10.10							
	43			A.	15.20	18.60	21.63	24.68	28.00							
	44			B.	51.45	54.10	56.70	59.40	2.12							
	45	β Lyræ	--	C.	25.63	28.00	30.50	32.73	35.03	44 30.34	0.76	- - -	3.59	18 44 34.69	2.28	
	46			D.	58.65	1.00	3.70	6.75	9.00							
	47			E.	32.65	35.49	39.30	42.70	45.49							
	48			A.	24.40	27.41	30.00	32.65	35.40							
	49			B.	55.50	58.00	0.33	2.42	4.61							
	50	ζ Aquilæ	--	C.	25.00	26.89	29.90	31.03	33.00	58 29.09	+ 0.55	- - -	+ 3.61	18 58 33.25	— 2.28	
	51			D.	53.41	55.53	58.10	0.45	2.49							
	52			E.	22.70	25.45	28.27	31.25	34.00							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
July 19, 18.2	— 12.86	+ 0.134	+ 0.483	+ 0.518	— 0.049
20, 17.0	10.27	.122			
23, 18.8	2.42	.080			
24, 20.0	— 0.58	.068			
27, 19.2	+ 3.61	+ 0.042			

DATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
			TIMES OF TRANSIT OVER WIRES.								CORRECTIONS FOR—					
1850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
July 27	1			A.	2.00	4.88	7.31	10.00	12.80							
	2			B.	32.90	35.00	37.20	39.20	41.80							
	3	γ Aquilæ	E.	C.	1.81	3.80	6.00	7.90	9.82	39 5.86	+ 0.52	- - -	+ 3.63	19 39 10.01	— 2.35	B.
	4			D.	30.00	32.00	34.47	37.00	38.89							
	5			E.	58.72	1.22	4.35	7.35	10.00							
	6			A.	22.31	25.40	28.00	30.39	33.35							
	7			B.	53.00	55.41	57.31	59.55	2.00							
	8	α Aquilæ	--	C.	22.00	24.12	26.20	28.00	30.20	43 26.02	0.50	- - -	3.63	19 43 30.15	2.39	
	9			D.	50.00	52.00	54.30	56.90	59.00							
	10			E.	18.60	21.17	24.40	27.20	29.80							
	11			A.	51.61	54.51	57.00	59.55	2.59							
	12			B.	22.20	24.49	26.60	28.50	31.00							
	13	β Aquilæ	--	C.	50.65	52.80	55.00	56.82	59.00	47 54.88	0.48	- - -	+ 3.64	19 47 59.00	2.36	
	14			D.	18.77	20.66	23.19	25.50	27.60							
	15			E.	47.30	49.82	52.82	55.75	58.20							
29	16			A.	46.00	48.50	51.00	53.70	56.50							
	17			B.	16.00	18.40	20.69	22.70	25.28							
	18	δ Ophiuchi	--	C.	44.60	46.51	48.60	50.60	52.60	6 48.69	0.40	- - -	— 18.13	16 6 30.96	1.73	
	19			D.	12.40	14.40	16.81	19.00	21.35							
	20			E.	40.84	43.40	46.40	49.26	51.70							
	21			A.	31.29	35.15	38.00	41.31	44.80							
	22			B.	8.28	11.30	14.00	16.30	19.00							
	23	ε Scorpii	--	C.	43.00	45.25	47.70	50.00	52.40	40 47.62	0.07	- - -	18.11	16 40 29.58	2.41	
	24			D.	16.20	18.60	21.38	24.49	26.85							
	25			E.	50.52	53.40	57.10	0.65	3.50							
	26	A Ophiuchi	--	C.	23.20	25.60	27.90	30.00	32.20	6 27.78	0.17	- - -	18.10	17 6 9.85	2.35	
	27			B.	44.20	46.85	49.17	51.30	54.00							
	28	Ophiuchi, (5813)	--	C.	16.14	18.30	20.70	22.70	25.00	7 20.53	0.15	- - -	18.10	17 7 2.58	2.35	
	29			D.	47.00	49.30	52.00	54.51	56.70							
	30			A.	13.49	16.40	19.00	21.60	24.40							
	31			B.	44.40	47.00	49.00	51.10	53.60							
	32	α Ophiuchi	--	C.	13.80	15.80	18.00	20.00	22.00	28 17.86	0.55	- - -	18.09	17 28 0.32	1.97	
	33			D.	42.00	44.29	46.54	49.00	51.00							
	34			E.	11.20	13.70	17.00	19.75	22.40							
	35			A.	9.00	12.03	15.00	17.70	20.80							
	36			B.	42.15	44.86	47.00	49.16	52.00							
	37	Serpentis, (6066)	--	C.	13.41	15.61	17.79	20.00	22.03	48 17.77	0.20	- - -	18.08	17 47 59.89	2.45	
	38			D.	43.50	45.65	48.04	51.00	53.28							
	39			E.	14.70	17.58	20.80	24.00	26.71							
	40			A.	0.40	3.40	6.00	9.00	12.00							
	41			B.	33.00	35.41	37.80	40.00	42.30							
	42	μ^1 Sagittarii	--	C.	3.20	5.80	8.00	10.00	12.00	5 7.79	0.23	- - -	18.07	18 4 49.95	2.44	
	43			D.	33.10	35.20	37.79	40.70	42.70							
	44			E.	3.72	6.20	9.20	12.50	15.29							
	45			B.	57.15	36.80	13.00	47.80	28.28							
	46	δ Ursæ Minoris	--	C.	59.62	33.00	8.20	41.00	14.00	21 6.85	8.17	- - -	18.07	18 20 56.95	13.34	
	47			D.	47.50	19.00	0.30	42.00	15.11							
	48			A.	36.80	40.30	43.32	46.33	50.00							
	49			B.	13.19	16.00	18.52	21.00	24.00							
	50	β Lyræ	--	C.	47.20	49.80	52.18	54.31	56.81	44 52.10	+ 0.76	- - -	— 18.06	18 44 34.80	— 2.27	
	51			D.	20.53	22.71	25.50	28.31	31.00							
	52			E.	54.40	57.43	1.00	4.40	7.40							

Date.	Clock.	Hourly rate.	VALUE OF *m.*	*n.*	*c.*
h.	s.	s.	s.	s.	s.
July 27, 19.2	+ 3.61	+ 0.042	+ 0.483	+ 0.518	— 0.049
29, 18.6	— 18.06	+ 0.028			

ATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
y 29	1	Hygea ? . . .	E.	C	16.79	19.40	21.20	23.61	25.65	2 21.33	+ 0.22	. . .	— 18.05	19 2 3.50	. . .	B.
	2			A.	13.00	16.00	18.40	21.00	23.80							
	3			B.	43.31	45.60	48.00	50.00	52.22							
	4	δ Aquilæ	--	C.	12.00	13.81	16.00	18.00	20.00	18 15.96	0.46	. . .	18.05	19 17 58.37	— 2.35	
	5			D.	39.62	41.52	44.00	46.42	48.60							
	6			E.	8.12	10.60	13.55	16.49	19.00							
	7			A.	23.40	26.41	29.00	31.70	34.60							
	8			B.	54.20	57.00	59.00	1.00	3.40							
	9	γ Aquilæ	--	C.	23.19	25.55	27.41	29.50	31.60	39 12.85	15.14	. . .	18.03	19 39 9.96	2.36	
	10			D.	51.40	53.50	56.10	58.50	0.50							
	11			A.	44.00	47.00	49.58	52.19	55.00							
	12			B.	14.70	17.00	19.36	21.40	23.85							
	13	α Aquilæ	--	C.	43.60	45.60	47.75	49.70	51.68	43 47.65	0.50	. . .	18.03	19 43 30.12	2.38	
	14			D.	11.55	13.55	16.00	18.43	20.50							
	15			E.	40.11	42.79	46.00	48.62	51.28							
	16			A.	13.28	16.22	18.60	21.21	24.20							
	17			B.	43.80	46.20	48.30	50.40	52.78							
	18	β Aquilæ	--	C.	12.43	14.50	16.60	18.50	20.50	48 16.54	0.48	. . .	18.03	19 47 58.99	2.37	
	19			D.	40.47	42.37	44.70	47.23	49.19							
	20			E.	9.00	11.30	14.45	17.42	19.80							
g. 2	21			A.	1.29	4.36	7.00	9.90	12.68							
	22			B.	33.80	36.20	38.69	41.00	43.30							
	23	μ^1 Sagittarii . . .	--	C.	4.38	6.50	8.47	10.78	13.00	5 8.65	0.23	. . .	18.89	18 4 49.99	2.42	
	24			D.	34.00	36.00	38.70	41.38	43.50							
	25			E.	4.30	7.00	10.40	13.31	16.23							
	26	δ Ursæ Majoris . .	--	C.	59.30	34.00	6.19	41.00	15.30	21 7.16	8.32	. . .	18.89	18 20 56.59	12.33	
	27			A.	51.50	55.00	58.00	1.10	5.20							
	28			B.	29.80	33.00	36.00	38.50	41.25							
	29	α Lyræ	--	C.	6.52	9.20	11.78	14.10	17.00	32 11.77	0.83	. . .	18.89	18 31 53.71	2.23	
	30			D.	42.00	44.60	47.68	50.74	53.30							
	31			E.	18.90	21.80	25.40	28.18	32.75							
	32			A.	37.55	41.14	44.06	47.20	50.62							
	33			B.	14.00	16.80	19.33	21.62	24.40							
	34	β Lyræ	--	C.	48.30	50.38	53.00	55.20	57.51	44 52.83	0.76	. . .	18.89	18 44 34.70	2.24	
	35			D.	21.13	23.55	26.38	29.38	31.64							
	36			E.	55.00	58.00	1.64	5.00	8.50							
	37			A.	13.76	16.60	19.20	22.00	24.55							
	38			B.	44.20	46.60	48.63	50.79	53.30							
	39	δ Aquilæ	--	C.	12.85	14.72	16.69	19.00	20.73	18 16.79	0.46	. . .	18.89	19 17 58.36	2.34	
	40			D.	40.35	42.39	44.90	47.32	49.15							
	41			E.	8.80	11.62	14.56	17.41	19.76							
	42			A.	24.42	27.50	30.00	32.55	35.49							
	43			B.	55.19	57.49	59.80	2.00	4.09							
	44	γ Aquilæ	--	C.	24.40	26.30	28.50	30.41	32.49	39 28.38	0.52	. . .	18.89	19 39 10.01	2.36	
	45			D.	52.50	54.43	56.80	59.30	1.50							
	46			E.	21.40	23.80	26.70	30.00	32.40							
	47			A.	44.79	47.56	50.30	53.00	55.80							
	48			B.	15.65	18.00	20.18	22.20	24.51							
	49	α Aquilæ	--	C.	44.40	46.50	48.78	50.64	52.58	43 48.49	0.50	. . .	18.89	19 43 30.10	2.38	
	50			D.	12.42	14.40	16.70	19.37	21.15							
	51			E.	41.10	43.71	46.69	49.50	52.25							

Aug. 2. Stars unsteady.

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
July 29, 18.6	— 18.06	+ 0.028	+ 0.483	+ 0.518	— 0.049
Aug. 2, 19.1	— 18.89	0.000			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0.	Observer.
1850.					s.	s.	s.	s.	s.	m. s.	m. s.		s.	h. m. s.	s.	
Aug. 2	1	β Aquilæ	E.	C.	13.40	15.50	17.30	19.50	21.55	48 17.45	+ 0.48	- - -	— 18.89	19 47 59.04	— 2.37	B.
6	2			A.	38.00	40.80	43.27	46.00	49.00							
	3			B.	8.70	11.00	13.39	15.20	17.44							
	4	β Orionis	--	C.	37.30	39.50	41.66	43.65	45.79	7 41.53	+ 0.36	- - -	— 21.75	5 7 20.14	— 0.31	
	5			D.	5.40	7.25	9.80	12.20	14.28							
	6			E.	34.20	36.79	39.80	42.75	45.00							
	7			A.	58.80	2.00	5.00	7.80	11.00							
	8			B.	33.22	36.00	38.35	41.00	43.37							
	9	β Tauri	--	C.	5.62	8.00	10.48	12.70	14.80	17 10.33	0.70	- - -	21.75	5 16 49.28	— 0.57	
	10			D.	37.25	39.50	42.20	44.80	47.20							
	11			E.	9.55	12.48	16.00	19.10	22.00							
	12			A.	48.00	51.00	53.68	56.40	59.20							
	13			B.	19.60	22.00	24.50	26.55	28.80							
	14	α Canis Majoris . .	--	C.	49.41	51.48	53.75	55.65	57.80	38 53.69	0.28	- - -	21.75	6 38 32.22	+ 0.15	
	15			D.	18.22	22.12	23.00	25.40	27.49							
	16			E.	48.00	50.50	53.60	56.60	59.50							
	17			A.	7.80	11.00	14.20	17.25	20.60							
	18			B.	43.69	46.40	48.80	51.30	54.21							
	19†	α^2 Geminorum . .	--	C.	17.20	19.85	22.20	24.40	27.00	25 22.14	0.75	- - -	21.75	7 25 1.14	0.10	
	20			D.	50.10	52.40	55.41	58.15	0.50							
	21			E.	23.66	26.75	30.38	33.60	36.67							
	22			A.	44.85	47.75	50.31	53.00	55.70							
	23			B.	15.30	17.85	20.00	22.00	24.24							
	24	α Canis Minoris . .	--	C.	44.00	46.00	48.00	50.00	52.18	31 48.07	0.48	- - -	21.75	7 31 26.80	0.08	
	25			D.	11.85	14.00	16.23	18.63	20.69							
	26			E.	40.40	42.85	46.00	48.81	51.20							
	27			A.	16.88	20.40	23.10	26.20	29.50							
	28			B.	51.60	54.21	56.70	59.20	1.80							
	29	β Geminorum . .	--	C.	24.10	26.49	28.68	31.00	33.10	36 28.63	0.70	- - -	21.75	7 36 7.58	+ 0.14	
	30			D.	55.41	57.80	0.50	3.27	5.47							
	31			E.	27.80	30.59	34.28	37.49	40.20							
7	32†	A Ophiuchi . . .	--	C.	26.70	29.00	31.39	33.66	36.00	6 31.35	0.17	- - -	21.42	17 6 10.10	— 2.25	
	33	Ophiuchi, (5813) .	--	C.	19.25	21.42	23.80	26.00	28.20	7 23.73	0.15	- - -	21.42	17 7 2.46	2.25	
	34†	Ophiuchi, (5831) .	--	C.	10.90	13.28	15.50	17.73	20.00	9 15.48	0.20	- - -	21.42	17 8 54.26	2.23	
	35	Ophiuchi, (5846) .	--	C.	7.00	9.21	11.60	13.65	16.00	13 11.49	0.19	- -	21.42	17 12 50.26	2.25	
	36			A.	14.50	17.70	20.20	23.21	26.35							
	37			B.	47.66	50.34	52.70	55.00	57.39							
	38	Sagittarii, (6080) .	--	C.	19.00	21.40	23.65	25.70	27.80	51 23.47	0.19	- - -	21.42	17 51 2.24	2.39	
	39			D.	49.38	51.55	54.23	57.00	59.05							
	40			E.	20.70	23.30	26.58	29.80	32.42							
	41			A.	49.20	52.18	55.00	57.70	0.60							
	42			B.	22.00	24.85	27.14	29.35	32.00							
	43	Sagittarii, (6161) .	--	C.	53.20	55.50	57.81	0.00	2.00	2 57.74	0.20	- - -	21.42	18 2 36.52	2.41	
	44			D.	23.72	25.80	28.31	31.00	33.20							
	45			E.	54.61	57.40	0.59	3.79	6.60							
	46	δ Ursæ Minoris . .	--	C.	1.00	34.40	9.00	44.00	17.27	21 9.13	8.32	- - -	21.42	18 20 56.03	10.76	
	47			A.	53.39	57.12	0.60	4.00	7.25							
	48			B.	32.00	36.00	38.37	41.00	44.00							
	49	α Lyræ	--	C.	9.10	11.70	14.32	17.00	19.80	32 14.29	+ 0.83	- - -	— 21.42	18 31 53.70	— 2.18	
	50			D.	44.80	47.20	50.25	53.20	55.68							
	51			E.	21.00	24.30	28.12	32.00	35.00							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Aug. 6, 6.6	— 21.75	0.000	+ 0.483	+ 0.518	— 0.049
7, 19.3	21.42	0.000			

19 Stars dim and unsteady.
32, 34. Double.

E.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
).					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
7	1		E.	A.	40.20	43.72	46.70	49.55	53.00							
	2			B.	16.00	19.00	21.80	24.40	27.00							
	3	β Lyræ	--	C.	50.26	53.00	55.30	57.68	0.40	44 55.28	+ 0.76	- - -	— 21.42	18 44 34.62	— 2.20	B.
	4			D.	23.83	26.00	28.87	31.64	34.00							
	5			E.	57.30	0.30	4.15	7.60	10.40							
	6			A.	16.30	19.30	21.80	24.39	27.17							
	7			B.	46.79	49.00	51.28	53.21	55.60							
	8	δ Aquilæ	--	C.	15.29	17.51	19.39	21.40	23.40	18 19.35	0.46	- - -	21.42	19 17 58.39	2.33	
	9			D.	43.20	45.00	47.39	49.70	51.85							
	10			E.	11.50	13.80	16.90	20.00	22.59							
	11			A.	27.00	30.00	32.28	35.00	37.70							
	12			B.	57.68	0.00	2.35	4.20	6.77							
	13	γ Aquilæ	--	C.	27.00	28.70	31.00	33.00	35.00	39 30.87	0.52	- - -	21.42	19 39 9.97	2.36	
	14			D.	55.00	57.00	59.25	2.00	4.00							
	15			E.	23.80	26.40	29.36	32.35	35.00							
	16			B.	17.80	20.35	22.90	24.80	27.00							
	17	α Aquilæ	--	C.	46.85	49.00	57.00	53.10	55.08	43 51.07	0.49	- - -	21.42	19 43 30.14	2.39	
	18			D.	15.50	17.00	19.50	22.00	24.13							
	19			A.	16.51	19.65	22.00	24.80	27.48							
	20			B.	47.20	49.65	52.00	54.00	56.20							
	21	β Aquilæ	--	C.	16.00	18.00	20.00	22.00	24.11	48 19.99	0.48	- - -	21.42	19 47 59.05	2.38	
	22			D.	43.79	45.65	48.09	50.38	52.52							
9	23			E.	12.30	15.00	18.00	21.00	23.50							
	24			A.	9.00	12.20	15.00	18.00	20.90							
	25			B.	42.48	45.15	47.50	49.80	52.33							
	26	Ophiuchi, (5846)	--	C.	14.00	16.15	18.46	20.60	23.00	13 18.37	0.19	- - -	28.40	17 12 50.16	2.23	
	27			D.	44.50	46.60	49.00	51.90	54.00							
	28			E.	15.80	18.51	21.80	25.00	27.69							
	29			B.	24.00	26.85	29.80	32.25	35.20							
	30	ν Scorpii	--	C.	59.70	2.40	5.00	7.50	10.10	21 4.90	0.02	. . .	28.40	17 20 36.52	2.55	
	31			D.	34.59	36.85	40.10	43.36	45.78							
	32			B.	15.40	18.50	21.21	23.70	26.70							
	33	λ Scorpii	--	C.	51.30	53.75	56.35	58.80	1.35	23 56.33	0.02	- - -	28.40	17 23 27.95	2.56	
	34			D.	26.20	28.52	31.46	34.55	37.15							
	35			A.	19.11	22.50	25.14	28.00	31.11							
	36			B.	52.43	55.12	57.40	59.50	2.18							
	37	Sagittarii, (6080)	--	C.	23.70	25.85	28.00	30.23	32.42	48 28.02	0.19	. . .	28.40	17 47 59.81	2.37	
	38			D.	53.80	55.80	58.62	1.40	3.31							
	39			E.	24.80	27.80	31.00	34.30	37.00							
	40			A.	55.90	59.20	1.80	4.70	7.70							
	41			B.	29.00	31.60	33.78	36.20	38.70							
	42	Sagittarii, (6161)	--	C.	0.30	2.51	4.70	6.85	9.00	3 4.65	0.20	- - -	28.40	18 2 36.45	2.39	
	43			D.	30.61	32.80	35.35	38.00	40.18							
	44			E.	1.60	4.22	7.54	10.60	13.32							
	45			A.	27.40	31.00	33.80	37.00	40.40							
	46			B.	4.00	7.00	9.50	12.15	15.00							
	47	ε Sagittarii	--	C.	38.81	41.40	44.00	46.22	48.70	14 43.69	0.07	- - -	28.40	18 14 15.36	2.68	
	48			D.	12.50	14.70	17.80	20.60	23.00							
	49			E.	46.75	49.79	53.52	57.00	0.20							
	50	δ Ursæ Minoris	--	C.	6.00	40.40	15.58	47.80	23.20	21 14.60	8.32	- - -	28.40	18 20 54.52	10.18	
	51			A.	47.00	50.50	53.50	56.68	0.00							
	52			B.	23.20	26.00	28.73	31.50	34.16							
	53	β Lyræ	--	C.	57.40	59.70	2.31	4.70	7.21	45 2.30	+ 0.76	- - -	— 28.40	18 44 34.66	— 2.19	
	54			D.	30.68	33.00	36.00	38.78	41.00							
	55			E.	4.40	7.70	11.32	14.45	17.69							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Aug. 7, 19.3	— 21.42	0.000	+ 0.483	+ 0.518	— 0.049
9, 20.2	— 28.40	0.000			

DATE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	I.	II.	III.	IV.	V.	Mean.	Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0.	Observer.
			TIMES OF TRANSIT OVER WIRES.								CORRECTIONS FOR—					
1850.					s.	s.	s.	s.	s.	m. s.	m. s.		s.	h. m. s.	s.	
Aug. 9	1			A.	23. 23	26. 37	28. 95	31. 10	34. 00							
	2			B.	53. 57	56. 17	58. 40	0. 30	2 56							
	3	δ Aquilæ	E.	C.	22. 37	24. 41	26. 45	28. 47	30. 37	18 26. 31	+ 0. 46	- - -	— 28. 40	19 17 58. 37	— 2. 33	E
	4			D.	50. 00	52. 00	54. 30	56. 52	58. 67							
	5			E.	18. 52	21. 00	24. 00	26. 66	29. 40							
	6			A.	33. 90	37. 00	39. 40	42. 00	44. 80							
	7			B.	4. 50	6. 90	9. 30	11. 36	13. 60							
	8	γ Aquilæ	--	C.	33. 70	35. 80	37. 74	40. 00	42. 00	39 37. 84	0. 52	- - -	28. 40	19 39 9. 96	2. 36	
	9			D.	2. 00	4. 00	6. 40	8. 90	11. 00							
	10			E.	30. 90	33. 40	36. 30	39. 32	41. 80							
	11			A.	54. 40	57. 11	59. 80	2. 40	5. 12							
	12			B.	24. 90	27. 36	29. 58	31. 80	34. 00							
	13	α Aquilæ	--	C.	53. 80	56. 00	58. 00	0. 00	2. 00	43 57. 99	0. 50	- - -	28. 40	19 43 30. 09	2. 39	
	14			D.	22. 00	24. 00	26. 31	29. 00	31. 00							
	15			E.	50. 80	53. 20	56. 30	59. 20	1. 72							
	16			A.	23. 66	26. 40	28. 80	31. 79	34. 50							
	17			B.	54. 00	56. 50	58. 62	0. 60	3. 12							
	18	β Aquilæ	--	C.	22. 55	24. 80	27. 00	29. 00	31. 00	48 26. 88	0. 48	- - -	28. 40	19 47 58. 96	2. 38	
	19			D.	50. 80	52. 80	55. 15	57. 40	59. 70							
	20			E.	19. 30	21. 80	24. 79	27. 70	30. 30							
	21			A.	9. 67	12. 78	15. 20	17. 85	20. 70							
	22			B.	40. 85	43. 30	45. 60	47. 60	49. 70							
	23	α^2 Capricorni . . .	--	C.	10. 10	12. 20	14. 29	16. 23	18. 30	10 14. 22	0. 31	- - -	28. 40	20 9 46. 13	2. 51	
	24			D.	38. 70	40. 41	43. 00	45. 44	47. 53							
	25			E.	7. 69	10. 19	13. 22	16. 20	18. 80							
	26			A.	20. 80	25. 00	28. 11	31. 90	36. 05							
	27			B.	3. 79	7. 00	10. 00	12. 80	15. 80							
	28	α Cygni	--	C.	43. 65	46. 70	49. 36	52. 27	55. 05	36 49. 36	0. 92	- - -	48. 40	20. 36 21. 88	2. 86	
	29			D.	22. 80	25. 58	28. 70	32. 13	34. 80							
	30			E.	2. 75	6. 40	10. 20	14. 50	17. 80							
	31			A.	21. 00	24. 80	28. 20	31. 35	34. 90							
	32			B.	59. 70	3. 00	5. 70	8. 21	11. 25							
	33	61^1 Cygni	--	C	36. 00	38. 56	41. 20	43. 69	46. 31	0 41. 14	0. 82	- - -	28. 40	21 0 13. 56	2. 98	
	34			D.	11. 20	13. 74	16. 80	19. 70	22. 63							
	35			E.	47. 20	50. 30	54. 13	58. 00	1. 00							
	36			A.	50. 90	54. 40	57. 38	0. 25	3. 45							
	37			B.	26. 00	28. 50	31. 29	33. 60	36. 00							
	38	ζ Cygni	--	C.	59. 00	1. 20	3. 49	5. 80	8. 20	7 3. 50	0. 71	- - -	28. 40	21 6 35. 81	2. 63	
	39			D.	30. 90	33. 00	35. 70	38. 71	40. 85							
	40			E.	3. 36	6. 40	9. 90	13. 10	16. 00							
	41			A.	17. 25	22. 80	28. 13	34. 00	39. 82							
	42			B.	21. 30	26. 60	30. 80	35. 70	40. 36							
	43	α Cephei	--	C.	22. 50	26. 70	31. 00	35. 50	39. 50	15 30. 88	1. 32	- - -	28. 40	21 15 3. 80	3. 91	
	44			D.	21. 50	25. 50	30. 68	35. 80	39. 80							
	45			E.	21. 67	27. 19	33. 31	39. 73	44. 80							
	46	ε Pegasi	--	C.	15. 48	17. 58	19. 50	21. 40	23. 50	37 19. 49	0. 52	- - -	28. 40	21 36 51. 61	2. 47	
	47†			A.	15. 20	18. 35	21. 00	23. 80	27. 00							
12	48			B.	47. 85	50. 40	52. 53	54. 80	57. 56							
	49	μ^1 Sagittarii . . .	--	C.	18. 30	20. 85	22. 80	25. 00	27. 22	5 22. 73	+ 0. 23	- - -	33. 09	18 4 49. 87	— 2. 34	
	50			D.	48. 12	50. 00	52. 90	55. 49	57. 40							
	51			E.	18. 40	21. 00	24. 50	27. 59	30. 20							

Date.	Clock.	Hourly rate.	VALUE OF m.	VALUE OF n.	VALUE OF c.
h.	s.	s.	s.	s.	s.
Aug. 9, 20.2	— 28. 40	+ 0. 483	+ 0. 483	+ 0. 518	— 0. 049
12, 19.2	— 33. 11				

47. Cloudy.

TE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s	s.	s.	s.	m. s.	m s.	s.	s	h. m. s.	s.	
50.																
g. 12	1			A.	4.90	9.00	11.85	15.00	18.90							
	2			B.	44.00	46.85	49.60	52.30	55.40							
	3	α Lyræ	E.	C.	20.20	23.10	25.80	28.20	31.00	32 25.69	+ 0.83	. . .	— 33.10	18 31 53.42	— 2.11	B.
	4			D.	56.20	58.70	1.63	4.75	7.30							
	5			E.	32.37	35.72	39.60	43.16	46.69							
	6			B.	58.40	1.00	3.00	5.00	7.20							
	7	δ Aquilæ	--	C.	27.10	29.20	31.13	33.00	35.15	18 31.07	0.45	. . .	33.11	19 17 58.41	2.31	
	8			D.	54.81	56.79	59.20	1.60	3.50							
	9			A.	38.53	41.78	44.20	46.80	49.53							
	10			B.	9.49	11.80	14.00	16.15	18.40							
	11	γ Aquilæ	--	C.	38.44	40.55	42.62	44.60	46.66	39 42.58	0.54	. . .	33.11	19 39 9.99	2.35	
	12			D.	6.70	8.60	11.00	13.48	15.50							
	13			E.	35.60	38.20	41.10	44.10	46.60							
	14			A.	59.30	2.20	4.60	7.32	10.10							
	15			B.	30.00	32.20	34.59	36.49	39.00							
	16	α Aquilæ	--	C.	58.80	0.75	2.90	5.05	7.00	44 2.85	0.50	. . .	33.12	19 43 30.23	2.38	
	17			D.	26.79	28.80	31.18	33.51	35.52							
	18			E.	55.45	58.00	0.80	4.00	6.50							
	19	β Aquilæ	--	C.	27.65	29.60	31.79	33.69	35.78	48 31.70	0.48	. . .	33.12	19 47 59.06	2.37	
g. 14	20			A.	37.05	40.30	43.00	46.00	49.14							
	21			B.	11.00	13.60	16.00	18.33	20.80							
	22	α Scorpii	--	C.	42.43	44.90	47.30	49.43	51.63	20 47.15	0.17	. . .	32.32	16 20 15.00	1.91	
	23			D.	13.53	15.62	18.45	21.11	23.30							
	24			E.	45.00	48.00	51.31	54.39	57.22							
	25			A.	45.58	49.51	52.35	55.51	58.90							
	26			B.	22.50	25.40	28.00	30.40	33.11							
	27	ε Scorpii	--	C.	57.00	59.40	1.80	4.12	6.60	41 1.75	0.07	. . .	32.31	16 40 29.51	2.19	
	28			D.	30.20	32.76	35.60	38.50	40.80							
	29			E.	4.58	7.40	11.30	14.63	17.80							
	30			A.	39.00	42.42	45.10	47.69	50.85							
	31			B.	12.50	15.00	17.40	19.72	22.17							
	32	Ophiuchi, (5815) .	--	C.	44.00	46.00	48.40	50.51	52.85	7 48.40	0.18	. . .	32.30	17 7 16.28	2.15	
	33			D.	14.55	16.65	19.41	21.90	24.15							
	34			E.	45.80	48.80	52.00	55.30	57.80							
	35			A.	27.70	30.38	32.80	35.58	38.40							
	36			B.	58.50	1.00	3.00	5.10	7.53							
	37	α Ophiuchi	--	C.	27.15	29.75	32.00	34.00	36.11	28 31.87	0.55	. . .	32.28	17 28 0.14	1.79	
	38			D.	56.20	58.00	0.50	3.20	5.00							
	39			E.	25.28	28.00	31.00	34.00	36.48							
	40			A.	25.20	28.40	31.22	34.00	37.00							
	41			B.	58.59	1.19	3.50	5.71	8.30							
	42	Sagittarii, (6086) .	--	C.	29.60	32.00	34.00	36.33	38.72	51 34.23	0.19	. . .	32.27	17 51 2.15	2.33	
	43			D.	0.30	2.30	5.00	7.64	9.75							
	44			E	31.50	34.29	37.36	40.59	43.20							
	45			A.	14.77	17.53	20.32	23.00	25.90							
	46			B.	47.10	49.65	51.85	54.00	56.32							
	47	μ^1 Sagittarii	--	C.	17.33	19.85	22.00	24.00	25.80	5 21.91	0.23	. . .	32.26	18 4 49.88	2.32	
	48			D.	47.50	49.30	52.00	54.56	56.79							
	49			E	17.79	20.41	23.79	26.78	29.46							
	50	δ Ursæ Minoris . .	--	C.	6.74	42.39	16.13	49.19	24.00	21 15.69	+ 8.17	. . .	-- 32.25	18 20 51.61	— 8.72	

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Aug. 12, 19.2	— 33.11	— 0.014	+ 0.483	+ 0.518	— 0.049
14, 18.7	— 32.24	+ 0.035			

DATE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
1850. Aug. 14	1			A.	4.20	7.90	11.40	14.65	18.20							
	2			B.	43.44	46.40	48.90	57.53	54.52							
	3	α Lyræ	E.	C.	19.80	22.55	25.15	27.65	30.00	32 24.92	+ 0.83	. . .	— 32.25	18 31 53.50	— 2.08	B.
	4			D.	55.20	57.60	1.10	3.82	6.30							
	5			E.	31.56	34.72	38.58	42.32	45.50							
	6†	β Lyræ	--	C.	1.20	3.69	5.80	8.21	10.78	45 5.94	0.76	. . .	32.24	18 44 34.46	2.12	
	7			A.	0.00	3.15	5.50	8.30	11.19							
	8			B.	31.13	33.62	35.80	38.23	40.52							
	9	ζ Aquilæ	--	C.	0.40	2.95	5.00	7.00	9.00	59 4.81	0.55	. . .	32.23	18 58 33.13	2.20	
	10			D.	29.22	31.20	33.60	36.00	38.23							
	11			E.	58.51	1.10	4.00	7.00	9.60							
	12			A.	27.15	30.00	32.56	35.20	38.70							
	13			B.	57.48	59.70	2.00	4.00	6.30							
	14†	δ Aquilæ	--	C.	26.00	28.00	30.23	32.33	34.30	18 30.11	0.46	. . .	32.22	19 17 58.35	2.30	
	15			D.	53.79	55.63	58.05	0.40	2.58							
	16			E.	22.15	24.75	27.72	30.70	33.00							
	17			B.	8.51	11.00	13.00	15.00	17.30							
	18	γ Aquilæ	--	C.	37.40	39.41	41.65	43.42	45.53	39 41.56	0.51	. . .	32.21	19 39 9.86	2.34	
	19			D.	5.79	7.75	10.15	12.68	14.78							
	20			A.	58.20	1.35	3.77	6.37	9.00							
	21			B.	28.80	31.00	33.15	35.23	37.30							
	22	α Aquilæ	--	C.	57.70	59.90	2.15	4.20	6.00	44 1.84	0.50	. . .	32.20	19 43 30.14	2.37	
	23			D.	25.80	27.80	30.25	32.60	34.63							
	24			E.	54.70	57.18	0.40	2.79	5.70							
	25			A.	27.60	30.11	32.68	35.53	38.40							
	26			B.	58.00	0.40	2.50	4.60	7.00							
	27‡	β Aquilæ	--	C.	26.85	28.85	30.82	32.79	35.00	48 30.78	0.48	. . .	32.20	19 47 59.06	2.36	
	28			D.	54.62	56.67	59.00	1.30	3.53							
	29			E.	23.14	25.50	28.80	31.62	34.30							
16	30			A.	0.40	3.78	6.43	9.40	12.40							
	31			B.	33.70	36.33	38.60	40.90	43.61							
	32	Sagittarii, (6161) .	--	C.	4.70	7.17	9.35	11.45	13.66	3 9.28	0.20	. . .	32.96	18 2 36.52	2.32	
	33			D.	35.15	37.30	40.00	42.70	44.77							
	34			E.	6.00	8.80	12.20	15.20	17.90							
	35			B.	43.90	47.18	49.07	52.37	55.30							
	36	α Lyræ	--	C.	20.50	23.15	25.80	28.30	30.80	32 25.69	0.82	. . .	32.98	18 31 53.53	2.04	
	37			D.	56.25	58.70	1.78	4.70	7.50							
	38			A.	51.50	55.10	58.10	1.15	4.58							
	39			B.	27.80	30.78	33.20	35.80	38.40							
	40	β Lyræ	--	C.	2.00	4.40	6.66	9.10	11.58	45 6.82	0.76	. . .	32.99	18 44 34.59	2.10	
	41			D.	35.05	37.60	40.60	43.30	45.50							
	42			E.	9.00	12.10	15.64	19.20	22.20							
	43			A.	38.60	41.59	44.00	46.50	49.47							
	44			B.	9.15	12.00	14.00	16.10	18.45							
	45†	γ Aquilæ	--	C.	38.28	40.40	42.70	44.50	46.50	39 42.47	0.52	. . .	33.02	19 39 9.96	2.33	
	46			D.	6.50	8.50	11.00	13.44	15.50							
	47			E.	35.25	37.80	41.00	44.00	46.38							
	48			A.	58.90	1.90	4.60	7.00	10.00							
	49			B.	29.80	32.40	34.10	36.42	38.60							
	50	α Aquilæ	--	C.	58.70	0.60	2.82	4.82	6.90	44 2.69	+ 0.50	. . .	— 33.03	19 43 30.16	— 2.36	
	51			D.	26.50	28.60	31.10	33.48	35.50							
	52			E.	55.20	57.90	1.00	3.80	6.50							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Aug. 14, 18.7	— 32.24	+ 0.035	+ 0.483	+ 0.518	— 0.049
16, 19.2	— 33.01	— 0.046			

6. Unsteady.
14. Stars become quite unsteady.
27, 45. Stars very unsteady.

ATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	TIMES OF TRANSIT OVER WIRES. I.	II	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s	h. m. s.	s.	
3. 16	1†			A.	28. 20	31. 10	33. 71	36. 35	39. 00							
	2			B.	58. 72	1. 20	3. 40	5. 60	7. 82							
	3	β Aquilæ - - - -	E.	C	27. 42	29. 45	31. 53	33. 52	35. 61	48 31. 53	+ 0. 48	. . .	— 33. 04	19 47 58. 97	— 2. 36	B.
	4			D.	55. 40	57. 38	59. 75	2. 17	4. 10							
	5			E.	24. 00	26. 42	29. 49	32. 30	34. 70							
21	6			A.	55. 80	58. 51	1. 12	3. 71	6. 50							
	7			B.	26. 00	28. 49	30. 80	32. 83	35. 19							
	8	α Canis Minoris - -	--	C.	54. 90	56. 90	58. 90	1. 00	3. 10	31 58. 91	0. 48	. . .	32. 35	7 31 27. 04	0. 20	
	9			D.	22. 68	24. 70	27. 12	29. 45	31. 44							
	10			E.	51. 18	53. 69	56. 83	59. 65	2. 20							
26	11			B.	2. 52	5. 00	7. 58	10. 00	12. 51							
	12	β Geminorum - -	--	C.	35. 20	37. 40	39. 50	42. 00	44. 05	36 39. 52	0. 70	. . .	32. 35	7 36 7. 87	0. 18	
	13			D.	6. 40	8. 50	11. 57	14. 20	16. 40							
	14	δ Ursæ Minoris - -	--	C.	3. 00	36. 00	12. 50	46. 00	19. 50	21 11. 40	8. 32	. . .	31. 43	18 20 48. 29	4. 48	
	15			A.	3. 49	7. 00	10. 40	13. 72	17. 40							
	16			B.	42. 40	45. 40	48. 10	50. 76	53. 75							
	17	α Lyræ - - - - -	--	C	18. 70	21. 48	24. 25	26. 40	29. 10	32 23. 98	0. 83	. . .	31. 43	18 31 53. 38	1. 86	
	18			D.	54. 30	56. 65	59. 90	2. 80	5. 40							
	19			E.	30. 78	33. 73	37. 70	41. 40	44. 60							
	20			A.	50. 16	53. 26	56. 39	59. 60	3. 00							
	21			B.	26. 00	29. 00	31. 50	33. 70	36. 68							
	22	β Lyræ - - - - -	--	C.	59. 30	2. 85	5. 00	7. 47	10. 00	45 5. 11	0. 76	. . .	31. 43	18 44 34. 44	1. 94	
	23			D.	33. 70	35. 80	38. 90	41. 80	43. 80							
	24			E.	7. 69	10. 50	13. 80	17. 60	20. 20							
	25			A.	59. 20	2. 20	5. 00	7. 30	10. 34							
	26			B.	30. 48	33. 00	35. 00	37. 15	39. 50							
	27	ζ Aquilæ - - - - -	--	C.	59. 70	1. 80	3. 90	6. 00	8. 00	59 3. 95	0. 55	. . .	31. 42	18 58 33. 08	2. 07	
	28			D.	28. 40	30. 33	32. 75	35. 30	37. 45							
	29			E.	57. 40	0. 20	3. 37	6. 20	8. 70							
	30			A.	26. 20	29. 08	31. 79	33. 90	36. 80							
	31			B.	56. 60	59. 00	1. 20	3. 20	5. 45							
	32	δ Aquilæ - - - - -	--	C.	25. 10	27. 00	29. 12	31. 18	33. 20	18 29. 15	0. 46	. . .	31. 42	19 17 58. 19	2. 22	
	33			D.	52. 72	55. 00	57. 19	59. 70	1. 50							
	34			E.	21. 13	23. 80	26. 80	29. 83	32. 40							
	35			A.	57. 30	0. 50	2. 90	5. 28	8. 40							
	36			B.	27. 83	30. 26	32. 60	34. 64	36. 80							
	37	α Aquilæ - - - - -	--	C.	56. 60	59. 00	0. 70	2. 78	5. 00	44 0. 89	0. 50	. . .	31. 41	19 43 29. 98	2. 29	
	38			D.	24. 65	26. 75	29. 12	31. 70	33. 66							
	39			E.	53. 55	56. 20	59. 30	2. 10	4. 60							
	40			A.	26. 68	29. 40	32. 00	34. 63	37. 45							
	41			B.	56. 90	59. 60	1. 52	3. 72	6. 00							
	42	β Aquilæ - - - - -	--	C.	25. 80	27. 90	29. 90	31. 72	33. 80	48 29. 81	0. 48	. . .	— 31. 41	19 47 58. 88	2. 30	
	43			D.	53. 70	55. 50	58. 00	0. 50	2. 40							
	44			E	22. 00	24. 51	27. 60	30. 69	33. 30							
27	45			A.	21. 50	26. 34	30. 18	34. 39	38. 79							
	46			B.	10. 29	14. 10	17. 62	20. 90	24. 33							
	47	γ Draconis - - -	--	C.	56. 11	59. 56	2. 50	5. 90	9. 00	53 2. 62	+ 1. 06	. . .	+ 5. 16	17 53 8. 84	1. 45	K.
	48			D.	40. 29	43. 82	47. 71	51. 70	54. 68							
	49			E.	26. 50	30. 70	35. 12	39. 83	43. 72							
	50			C.	39. 90	42. 17	44. 41	46. 51	48. 66							
	51	μ^1 Sagittarii - - -	--	D.	9. 70	11. 81	14. 40	17. 10	19. 10	5 14. 92	— 30. 36	. . .	+ 5. 17	18 4 49. 73	— 2. 16	
	52			E	40. 18	42. 72	46. 12	49. 10	41. 93							

1. Stars very unsteady.

Date.	Clock.	Hourly rate.	VALUE OF— m.	n.	c.
h.	s.	s.	s.	s.	s.
Aug. 16, 19. 2	— 33. 01	— 0. 046	+ 0. 483	+ 0. 518	— 0. 049
21, 7. 5	32. 35	. 000			
26, 19. 2	— 31. 42	+ . 014			
27, 19. 1	+ 5. 23	+ 0. 056			

DATE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	I.	II.	III.	IV.	V.	Mean.	Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
			TIMES OF TRANSIT OVER WIRES.								CORRECTIONS FOR—					
1850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Aug. 27	1			A.	26.60	29.77	33.43	37.12	40.50							
	2			B.	5.80	7.20	11.48	14.60	19.00							
	3	α Lyræ	E.	C.	42.12	44.78	47.39	49.91	52.36	31 47.35	+ 0.83	. . .	+ 5.20	18 31 53.36	— 1.84	K.
	4			D.	17.71	20.61	23.31	25.80	29.00							
	5			E.	54.00	57.82	0.95	4.32	7.70							
	6			D.	56.70	59.33	2.10	4.20	7.40							
	7	β Lyræ	--	E.	30.90	34.10	37.00	40.10	43.59	45 19.54	— 50.41	. . .	5.21	18 44 34.34	1.92	
	8			B.	20.10	22.00	24.55	26.91	28.78							
	9			C.	48.40	50.58	52.60	54.58	56.45							
	10	δ Aquilæ	--	D.	16.20	18.37	20.44	22.77	25.00	18 6.93	— 13.95	. . .	5.24	19 17 58.22	2.21	
	11			E.	44.90	47.63	50.15	52.58	55.38							
	12			A.	0.05	2.59	5.47	8.57	11.25							
	13			B.	31.17	33.12	35.60	38.10	40.00							
	14	γ Aquilæ	--	C.	0.05	2.00	4.20	6.00	8.17	40 4.11	+ 0.52	. . .	5.26	19 40 9.89	2.25	
	15			D.	28.20	30.50	32.60	34.87	37.43							
	16			E.	57.00	0.04	2.71	5.00	8.10							
	17			A.	20.60	23.00	25.83	29.09	31.51							
	18			B.	51.65	53.32	55.78	58.37	0.31							
	19	α Aquilæ	--	C.	20.40	22.29	24.14	26.07	28.20	44 24.23	0.50	. . .	5.26	19 44 29.99	2.28	
	20			D.	48.12	50.50	52.70	54.73	57.50							
	21			E.	17.17	19.80	22.49	24.90	27.80							
	22			A.	49.79	52.37	55.07	58.29	0.83							
	23			B.	20.64	22.69	25.05	27.46	29.30							
	24	β Aquilæ	--	C.	49.20	51.19	53.18	55.27	57.33	47 53.21	0.48	. . .	5.27	19 47 58.96	2.29	
	25			D.	17.05	19.38	21.37	23.51	26.00							
	26			E.	45.70	48.55	51.14	53.60	56.40							
28	27	μ^1 Sagittarii	W.	C.	38.58	40.82	43.22	45.00	47.49	4 43.10	0.12	. . .	6.53	18 4 49.75	2.14	B.
	28			B.	24.00	55.00	36.00	17.20	51.00							
	29	δ Ursæ Minoris	--	C.	23.30	57.66	31.60	3.79	39.73	20 31.23	11.44	. . .	6.53	18 20 49.20	3.78	
	30			D.	10.20	51.15	23.80	1.00	43.00							
	31			B.	48.00	50.45	53.29	56.16	58.69							
	32	β Lyræ	--	C.	21.80	24.60	27.00	29.50	31.78	44 26.93	0.80	. . .	6.54	18 44 34.27	1.90	
	33			D.	55.20	58.10	0.40	3.00	6.00							
	34			B.	2.00	4.20	6.85	9.38	11.60							
	35	ε Sagittarii	--	C.	32.50	35.00	37.10	39.20	41.70	55 37.11	0.09	. . .	6.54	18 55 43.74	2.36	
	36			D.	2.70	5.10	7.31	9.70	12.34							
	37			A.	48.22	50.60	53.60	56.80	59.30							
	38			B.	19.00	20.60	23.00	25.40	27.40							
	39	δ Aquilæ	--	C.	47.39	49.20	51.30	53.20	55.27	17 51.25	0.41	. . .	6.55	19 17 58.21	2.20	
	40			D.	15.00	17.19	19.30	21.60	24.00							
	41			E.	43.40	46.15	48.80	51.29	54.32							
	42			A.	58.85	1.00	4.50	7.31	10.00							
	43			B.	29.71	31.78	34.30	36.70	38.72							
	44	γ Aquilæ	--	C.	58.80	1.00	2.90	5.00	7.11	40 2.84	0.50	. . .	6.56	19 40 9.90	2.24	
	45			D.	26.79	29.30	31.29	33.45	36.50							
	46			E.	55.80	58.60	1.38	3.70	7.00							
	47			A.	19.12	21.72	24.65	27.67	30.40							
	48			B.	50.20	52.36	54.56	57.19	59.20							
	49	α Aquilæ	--	C.	18.78	21.00	23.10	25.00	27.30	43 22.98	+ 0.48	. . .	+ 6.56	19 43 30.02	— 2.28	
	50			D.	46.70	49.20	51.25	53.32	56.00							
	51			E.	15.64	18.50	21.20	23.79	26.78							

Date.	Clock.	Hourly rate.	VALUE OF *m.*	*n.*	*c.*
h.	s.	s.	s.	s.	s.
Aug. 27, 19.1	+ 5.23	+ 0.056	E. +0.483	+ 0.518	— 0.049
			W. +0.391	+ 0.680	— 0.013
28, 19.2	+ 6.55	+ 0.021			

TE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
50.																
.28	1			A.	48.60	51.00	54.00	57.00	59.60							
	2			B.	19.00	21.16	23.80	26.15	28.20							
	3	β Aquilæ	W.	C.	47.80	50.00	52.00	53.90	56.10	47 57.89	+ 0.45	. . .	+ 6.56	19 47 58.90	— 2.29	B.
	4			D.	15.82	18.00	20.08	22.05	24.51							
	5			E.	44.28	47.00	49.70	52.15	55.30							
30	6			B.	17.70	20.19	22.43	29.29	26.72							
	7	δ Aquilæ	E.	C.	46.00	48.00	50.20	52.00	54.38	17 50.28	+ 0.46	. . .	+ 7.47	19 17 58.21	— 2.17	
	8			D.	14.00	16.00	18.30	21.00	23.00							
	9†			A.	58.00	1.00	3.50	6.00	9.00							
	10			B.	28.78	31.00	33.29	35.32	37.90							
	11	γ Aquilæ	--	C.	57.81	59.90	2.00	4.00	6.10	39 1.85	0.52	. . .	7.47	19 39 9.84	2.22	
	12			D.	25.80	27.80	30.29	32.80	34.90							
	13			E.	54.59	57.29	0.40	3.00	5.80							
	14	α² Capricorni	--	C.	34.20	36.21	38.40	40.40	42.52	9 38.35	+ 0.31	. . .	7.47	20 9 46.13	2.45	
t. 3	15			A.	43.00	6.50	7.40	16.00	39.80							
	16			B.	2.55	48.60	15.00	41.25	24.80							
	17	Polaris, S. P.	--	C.	47.00	30.17	13.50	55.28	37.90	6 14.84	— 18.49	. . .	10.36	13 6 6.71	60.99	
	18			D.	6.00	35.09	12.20	55.00	23.10							
	19			E.	40.81	50.90	15.49	31.42	42.20							
	20			A.	3.48	6.40	8.85	11.71	14.42							
	21			B.	34.44	36.63	38.90	41.11	43.40							
	22	α Virginis	--	C.	3.50	5.59	7.90	9.70	11.70	17 7.49	+ 0.34	. . .	10.37	13 17 18.20	0.46	
	23			D.	31.55	33.50	36.00	38.38	40.38							
	24			E.	0.40	2.85	5.81	9.00	11.60							
	25			A.	44.10	47.12	49.53	52.25	54.80							
	26			B.	14.30	16.78	19.00	21.00	23.32							
	27	δ Aquilæ	--	C.	42.95	45.00	47.00	49.00	51.33	17 47.09	0.46	. . .	10.61	19 17 58.16	2.12	
	28			D.	11.00	13.00	15.20	17.59	19.60							
	29			E.	39.25	41.70	44.69	47.68	50.00							
	30			A.	54.59	57.52	0.00	2.82	5.60							
	31			B	25.48	27.90	30.10	32.00	34.50							
	32	γ Aquilæ	--	C.	54.39	56.38	58.66	0.70	2.45	38 58.57	0.52	. . .	10.62	19 39 9.71	2.17	
	33			D.	22.80	24.60	27.00	29.60	31.60							
	34			E.	51.72	54.10	57.12	0.25	2.40							
	35			A.	15.32	18.28	20.79	23.46	26.20							
	36			D.	46.00	48.21	50.40	52.66	54.80							
	37	α Aquilæ	--	C.	14.58	16.85	10.90	20.70	22.80	43 18.84	0.50	. . .	10.63	19 43 29.97	2.21	
	38			D.	42.65	44.80	47.20	49.69	51.60							
	39			E.	11.50	14.00	17.00	20.00	22.54							
	40†			A.	44.52	47.40	50.00	52.45	55.30							
	41			B.	15.00	17.50	19.52	21.70	24.10							
	42	β Aquilæ	--	C.	43.80	46.00	48.00	50.00	51.72	47 47.81	0.48	. . .	10.63	19 47 58.92	2.22	
	43			D.	11.70	13.34	16.00	18.30	20.20							
	44			E.	40.27	42.80	45.76	48.66	51.33							
4	45			A.	44.33	47.32	49.82	52.50	55.34							
	46			B.	15.40	17.86	20.00	22.00	24.50							
	47	α Ophiuchi	--	C.	44.77	46.80	49.00	50.87	52.80	27 48.83	0.55	. . .	10.35	17 27 59.73	1.45	K.
	48			D.	13.20	15.10	17.58	20.00	22.00							
	49			E.	42.20	45.00	48.00	50.88	53.39							
	50			A.	16.30	20.70	24.58	28.89	33.21							
	51			B.	4.82	8.47	12.09	15.23	19.00							
	52	γ Draconis	--	C.	50.44	53.80	57.00	0.20	3.57	52 57.04	+ 1.06	. . .	+ 10.35	17 53 8.45	— 1.20	
	53			D.	35.13	38.12	42.09	46.00	49.00							
	54			E.	20.70	24.70	29.71	34.14	38.20							

9. Stars unsteady.
40. Stars unsteady during the night.

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Aug. 30, 19.7	+ 7.47	0.000	E. +0.483	+ 0.518	— 0.049
			W. +0.391	+ 0.680	— 0.013
Sept. 3, 18.3	10.57	+ .041			
4, 18.2	+ 10.35	+ 0.006			

DATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
			TIMES OF TRANSIT OVER WIRES.								CORRECTIONS FOR—					
1850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Sept. 4	1			A.	31.58	34.71	37.33	40.00	43.20							
	2			B.	4.21	6.58	9.00	11.00	13.60							
	3	μ^1 Sagittarii	E.	C.	34.70	37.00	39.05	41.20	43.20	4 39.02	+ 0.23	- - -	+ 10.35	18 4 49.60	— 2.03	K.
	4			D.	4.53	6.50	9.16	11.63	13.69							
	5			E.	34.94	37.68	40.83	43.78	46.51							
	6			A.	21.37	24.82	28.30	31.53	35.19							
	7			B.	0.28	3.30	6.11	8.59	11.61							
	8	α Lyræ	--	C.	36.51	39.39	42.10	44.50	49.20	31 41.95	0.83	- - -	10.35	18 31 53.13	1.56	
	9			D.	12.30	14.79	18.00	21.00	23.43							
	10			E.	48.79	52.00	55.70	59.42	2.52							
	11			A.	53.09	56.43	59.34	2.52	5.84							
	12			B.	29.29	32.00	34.51	36.83	39.80							
	13	β Lyræ	--	C.	18.30	20.73	23.20	25.50	27.89	44 23.14	0.76	- - -	10.35	18 44 34.25	1.77	
	14			D.	51.50	53.79	56.79	59.57	1.80							
	15			E.	25.49	28.49	32.00	35.40	38.34							
16	16			A.	42.44	45.15	47.70	50.19	53.12							
	17			B.	12.81	15.20	17.19	19.21	21.61							
	18	δ Aquilæ	--	C.	41.27	43.18	45.20	47.37	49.49	17 45.33	0.46	- - -	12.21	19 17 58.00	1.94	
	19			D.	9.11	10.90	13.49	16.00	17.71							
	20			E.	37.61	40.00	43.00	46.00	48.40							
	21			A.	40.21	43.40	45.90	48.31	51.50							
	22			B.	11.81	14.39	16.63	18.54	21.28							
	23	e^2 Sagittarii	--	C.	41.70	43.82	45.80	48.20	49.91	33 45.87	+ 0.28	- - -	12.22	19 33 58.37	- - -	
	24			D.	10.62	12.52	15.19	17.80	19.82							
	25			E.	40.52	42.72	45.80	48.92	51.36							
	26			B.	23.74	26.30	28.32	30.57	32.89							
	27			C.	52.86	54.87	56.83	59.06	1.05							
	28	γ Aquilæ	--	D.	20.85	22.90	25.50	27.89	29.89	39 11.52	— 14.10	- - -	12.22	19 39 9.64	2.00	
	29			E.	50.00	52.40	55.46	58.40	0.75							
	30			A.	13.60	16.39	19.00	21.28	24.40							
	31			B.	44.10	46.70	48.72	50.79	53.24							
	32	α Aquilæ	--	C.	13.08	15.18	17.00	19.15	21.23	43 17.11	+ 0.50	- - -	12.22	19 43 29.83	2.05	
	33			D.	41.00	43.00	45.46	48.00	50.00							
	34			E.	9.78	12.42	15.24	19.31	20.80							
	35			A.	41.00	44.34	46.92	49.60	52.75							
	36			B.	13.77	16.19	18.69	21.09	23.54							
	37	Moon, 1st L.	--	C.	44.67	47.10	49.00	51.30	53.39	25 49.12	0.26	+ 64.28	12.23	20 27 5.89	2.19	
	38			D.	14.84	16.75	19.51	22.18	24.23							
	39			E.	45.70	48.42	51.50	54.63	57.18							
	40			A.	39.52	43.80	47.00	50.87	54.82							
	41			B.	22.60	25.79	28.61	31.64	35.08							
	42	α Cygni	--	C.	2.50	5.34	8.19	10.92	13.86	36 8.26	0.93	- - -	12.23	20 36 21.42	2.42	
	43			D.	41.41	44.49	47.90	51.27	54.10							
	44			E.	21.55	24.80	29.73	33.67	37.00							
17	45			A.	5.17	8.70	11.60	14.60	18.33							
	46			B.	41.70	44.50	46.48	49.49	52.40							
	47	β Lyræ	--	C.	15.72	18.00	20.40	22.70	25.30	44 20.50	0.76	- - -	12.67	18 44 33.93	1.49	B.
	48			D.	49.00	51.18	54.17	57.00	59.50							
	49			E.	22.70	25.70	29.60	33.00	35.70							
	50			A.	14.70	17.55	20.40	22.80	25.80							
	51			B.	45.80	48.15	50.40	52.75	55.00							
	52	ζ Aquilæ	--	C.	15.22	17.39	19.42	21.47	23.57	58 19.42	+ 0.55	- - -	+ 12.68	18 58 32.65	— 1.73	
	53			D.	43.70	45.71	48.20	50.90	53.00							
	54			E.	13.20	15.60	18.90	21.75	24.20							

Date.	Clock.	Hourly rate.	VALUE OF m.	VALUE OF n.	VALUE OF c.
h.	s.	s.	s.	s.	s.
Sept. 4, 18.2	+ 10.35	+ 0.006	+ 0.483	+ 0.518	— 0.049
16, 19.8	12.22	.018			
17, 20.2	+ 12.70	+ 0.018			

ATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
t. 17	1			A.	52.70	55.50	57.85	0.40	3.40							
	2			B.	23.40	26.00	28.00	30.00	32.41							
	3	γ Aquilæ	E.	C.	52.30	54.30	56.40	58.45	0.50	38 56.45	+ 0.52	- - -	+ 12.69	19 39 9.66	— 1.98	B.
	4			D.	20.50	22.38	25.00	27.40	29.50							
	5			E.	49.42	52.00	55.00	58.00	0.35							
	6			B.	43.50	45.90	48.20	50.23	52.71							
	7	α Aquilæ	--	C.	12.55	14.48	16.30	18.70	20.60	43 16.51	0.49	- - -	12.69	19 43 29.69	2.03	
	8			D.	40.30	42.48	45.00	47.40	49.24							
	9			A.	42.20	45.18	47.60	50.11	52.90							
	10			B.	12.80	15.20	17.20	19.38	22.00							
	11	β Aquilæ	--	C.	41.30	43.70	45.60	47.55	49.55	47 45.52	0.48	- - -	12.69	19 47 58.69	2.04	
	12			D.	9.21	11.19	13.70	16.19	18.20							
	13			E.	38.00	40.28	43.53	46.30	49.00							
	14	η Capricorni . . .	--	C.	37.00	39.15	41.29	43.35	45.68	55 41.29	0.24	- - -	12.71	20 55 54 24	2.49	
	15			B.	41.29	43.69	46.00	48.00	50.40							
	16	ν Aquarii	--	C.	10.28	12.50	14.38	16.50	18.66	1 14.51	0.22	- - -	12.71	21 1 27.44	2.43	
	17			D.	38.50	40.80	43.12	45.80	47.80							
	18			B.	44.68	47.63	49.68	52.20	55.10							
	19	ζ Cygni	--	C.	17.50	19.82	22.10	24.40	26.90	6 22.14	0.72	- - -	12.71	21 6 35.57	2.45	
	20			D.	49.50	51.50	54.35	57.20	59.60							
	21			A.	5.70	8.80	11.28	14.17	17.20							
	22			B.	38.00	40.57	42.70	45.12	47.68							
	23	Moon, 1st L. . . .	--	C.	8.45	10.54	12.90	15.00	17.14	16 12.85	0.27	+ 63.55	12.72	21 17 29.39	- - -	
	24			D.	38.22	40.39	42.60	45.30	47.40							
	25			E.	8.76	11.39	14.19	17.68	20.00							
	26			B.	56.00	58.39	0.70	3.00	5.14							
	27	β Aquarii	--	C.	25.00	27.00	29.00	30.90	32.90	23 28.90	0.38	- - -	12.72	21 23 42.00	2.55	
	28			D.	52.60	54.70	57.00	59.60	1.50							
	29			B.	22.90	25.29	27.40	29.30	31.80							
	30	μ Capricorni . . .	--	C.	52.18	54.13	56.20	58.40	0.50	44 56.28	0.30	- - -	12.73	21 45 9.31	2.46	
	31			D.	20.81	22.70	25.00	27.56	30.00							
	32			A.	51.25	53.90	56.70	58.90	1.60							
	33			B.	21.12	23.76	26.00	28.00	30.38							
	34	α Aquarii	--	C.	50.00	52.00	54.00	56.12	57.80	57 53.99	0.42	- - -	12.73	21 58 7.14	2.53	
	35			D.	17.63	19.60	22.10	24.50	26.50							
	36			E.	45.90	48.60	51.70	54.60	57.00							
21	37			A.	12.00	15.00	17.50	20.00	23.10							
	38			B.	43.12	45.71	47.90	50.00	52.40							
	39	ζ Aquilæ	--	C.	12.41	14.70	16.50	18.80	20.87	58 16.70	0.55	- - -	15.35	18 58 32.60	1.66	
	40			D.	41.11	43.10	45.40	48.00	50.00							
	41			E.	10.33	13.00	16.12	19.00	21.38							
	42			A.	39.20	41.95	44.55	46.90	49.85							
	43			B.	9.32	11.80	14.00	16.00	18.40							
	44	δ Aquilæ	--	C.	38.00	40.00	42.09	44.10	46.12	17 42.07	0.46	- - -	15.36	19 17 57.89	1.86	
	45			D.	5.78	7.73	10.10	12.60	14.62							
	46			E.	34.20	36.80	39.85	42.70	45.00							
	47			A.	49.70	52.70	55.30	57.65	0.80							
	48			B.	20.70	23.00	25.00	27.19	29.67							
	49	γ Aquilæ	--	C.	49.60	51.50	53.60	55.60	57.70	38 53.67	+ 0.52	- - -	+ 15.37	19 39 9.56	— 1.92	
	50			D.	17.70	19.70	22.36	24.65	26.57							
	51			E.	46.70	49.30	52.20	55.25	57.60							

Sept. 17. Extremely bad night for observing. Stars extremely unsteady and blurred.

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Sept. 17, 20.2	+ 12.70	+ 0.018	+ 0.483	+ 0.518	— 0.049
21, 20.4	+ 15.39	+ 0.031			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
1850. Sept. 21	1			A.	10.20	12.30	15.60	18.20	21.15							
	2			B.	41.00	43.40	45.40	47.58	49.83							
	3	α Aquilæ	E.	C.	9.80	11.70	13.78	15.70	17.90	43 13.81	+ 0.50	. . .	+ 15.37	19 43 29.68	— 1.97	B.
	4			D.	37.60	39.60	42.00	44.62	46.70							
	5			E.	6.70	9.00	12.12	15.08	17.40							
	6			A.	39.40	42.40	44.90	47.27	50.49							
	7			B.	10.00	12.54	14.50	16.57	19.07							
	8	β Aquilæ	--	C.	38.50	40.80	42.66	44.77	46.80	49 42.74	0.48	. . .	15.37	19 47 58.59	1.98	
	9			D.	6.51	8.43	11.00	13.45	15.45							
	10			E.	35.20	37.50	40.60	43.60	46.00							
	11			B.	56.58	59.35	1.53	3.50	5.80							
	12†	α^2 Capricorni . . .	--	C.	25.60	27.90	30.11	32.20	34.43	9 30.12	0.31	. . .	15.38	20 9 45.81	2.21	
	13			D.	54.30	56.57	59.00	1.40	3.50							
	14	α Cygni	--	C.	59.15	2.20	5.00	7.80	10.70	36 4.97	0.93	. . .	15.40	20 36 21.30	2.32	
	15			A.	7.20	10.40	13.30	16.15	19.80							
	16			B.	42.00	44.80	47.40	49.62	52.41							
	17	ζ Cygni	--	C.	14.72	17.20	19.50	21.85	24.20	6 19.52	0.72	. . .	15.41	21 6 35.65	2.40	
	18			D.	46.70	49.00	51.80	54.50	57.00							
	19			E.	19.48	22.22	25.90	29.00	31.80							
	20			A.	32.23	37.90	43.30	49.00	55.36							
	21			B.	37.09	41.80	46.80	51.00	56.00							
	22	α Cephei	--	C.	37.28	41.80	46.10	50.58	54.51	14 46.12	1.36	. . .	15.42	21 15 2.90	3.23	
	23			D.	36.30	40.40	45.60	51.00	55.25							
	24			E.	37.30	42.40	49.00	55.00	0.10							
	25			A.	22.90	25.80	28.28	30.50	33.67							
	26			B.	53.47	56.08	58.00	0.00	2.50							
	27	β Aquarii	--	C.	22.00	24.20	26.38	28.30	30.32	23 26.18	0.38	. . .	15.42	21 23 41.98	2.43	
	28			D.	49.85	51.90	54.50	56.90	58.80							
	29			E.	18.52	21.00	24.20	27.00	29.50							
	30			A.	31.70	34.90	37.12	39.71	42.80							
	31			B.	2.60	5.08	7.15	9.43	11.58							
	32	ε Pegasi	--	C.	31.20	33.73	35.55	37.60	39.65	36 35.60	0.51	. . .	15.43	21 36 51.54	2.46	
	33			D.	59.80	1.50	4.18	6.40	8.35							
	34			E.	28.48	30.90	34.00	37.05	39.38							
	35			A.	14.50	17.20	20.00	22.48	25.36							
	36			B.	45.08	47.70	50.00	52.00	54.40							
	37	Neptune . . .	--	C.	14.00	16.30	18.50	20.45	22.40	28 18.39	0.34	. . .	15.45	22 28 34.18	. . .	
	38			D.	42.39	44.52	46.80	49.40	51.40							
	39			E.	11.54	13.80	17.00	20.00	22.40							
	40			A.	54.72	58.60	1.40	4.40	7.80							
	41			B.	30.35	33.20	35.60	38.00	40.71							
	42	α Piscis Australis .	--	C.	3.47	5.71	8.35	10.60	12.80	49 8.13	+ 0.13	. . .	15.46	22 49 23.72	2.72	
	43			D.	35.50	37.80	40.64	43.60	45.68							
	44			E.	8.50	11.51	15.00	18.30	21.00							
	45			A.	42.00	5.00	10.00	16.00	34.00							
23	46			B.	2.00	50.00	12.00	39.00	21.00							
	47	Polaris, S. P. . .	--	C.	50.00	28.00	12.00	53.00	35.00	6 12.32	— 18.52	. . .	15.61	13 6 9.41	68.13	
	48			D.	5.00	31.00	11.00	55.00	22.00							
	49			E.	44.00	52.00	17.00	40.00	42.00							
	50			B.	28.83	31.20	33.40	35.55	37.81							
	51	Virginis	--	C.	57.70	59.80	1.80	4.10	6.00	17 1.91	+ 0.34	. . .	+ 15.62	13 17 17.87	— 0.35	
	52			D.	26.00	28.00	30.30	33.00	35.10							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Sept. 21, 20.4	+ 15.39	+ 0.031	+ 0.483	+ 0.518	— 0.049
23, 19.6	+ 15.95	+ 0.053			

12. Stars very unsteady.

TE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
50.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
t. 23	1			A.	59.80	3.00	5.70	8.21	11.46							
	2			B.	32.52	35.10	37.38	39.70	42.18							
	3	Lalande, 35540	E.	C.	3.10	5.20	7.40	9.66	12.00	55 7.48	+ 0.22	- - -	+ 15.91	18 55 23.61	— 1.92	B.
	4			D.	33.00	35.00	37.73	40.40	42.66							
	5			E.	3.60	6.20	9.35	12.52	15.10							
	6			A.	38.62	41.49	44.00	46.40	49.51							
	7			B.	9.00	11.60	13.58	15.70	18.00							
	8	δ Aquilæ	--	C.	37.57	39.40	41.60	43.60	45.70	17 41.61	0.46	- - -	15.93	19 17 58.00	1.82	
	9			D.	5.10	7.34	9.70	12.00	14.11							
	10			E.	34.00	36.30	39.36	42.10	44.50							
	11			A.	49.10	52.00	54.60	57.20	0.30							
	12			B.	20.00	22.28	24.60	26.82	29.08							
	13	γ Aquilæ	--	C.	49.00	51.00	53.00	55.10	57.15	38 53.08	0.52	- - -	15.95	19 39 9.55	1.88	
	14			D.	17.00	19.00	21.58	24.00	26.20							
	15			E.	46.10	48.48	51.62	54.50	57.20							
	16			A.	9.60	12.60	15.00	17.62	20.80							
	17			B.	40.28	42.80	45.00	46.90	49.50							
	18	α Aquilæ	--	C.	9.25	10.20	13.10	15.20	17.40	43 13.23	0.50	- -	15.96	19 43 29.69	1.93	
	19			D.	37.10	39.14	41.51	44.00	46.00							
	20			E	5.82	8.20	11.40	14.40	17.00							
	21			A.	39.00	41.66	44.11	46.88	49.67							
	22			B.	9.60	11.60	13.68	16.11	18.47							
	23	β Aquilæ	--	C.	38.00	40.00	42.20	44.19	46.20	47 42.10	0.48	- - -	15.96	19 47 58.54	1.95	
	24			D.	6.00	7.78	10.20	12.60	14.57							
	25			E.	34.50	37.00	40.00	43.20	45.40							
	26			A.	35.70	39.90	43.40	46.71	51.00							
	27			B.	18.73	22.10	24.68	27.85	31.40							
	28	α Cygni	--	C.	58.67	1.20	3.90	7.10	10.10	36 4.32	0.93	- - -	16.00	20 36 21.25	2.28	
	29			D.	37.80	40.20	43.80	47.10	50.00							
	30			E.	17.90	21.18	25.30	29.40	33.00							
	31			A.	6.27	9.60	12.70	15.50	18.90							
	32			B.	41.60	44.00	46.54	48.80	51.80							
	33	ζ Cygni	--	C.	14.00	16.32	18.60	21.20	23.50	6 18.81	0.72	- - -	16.03	21 6 35.56	2.37	
	34			D.	46.00	48.40	51.00	53.80	56.30							
	35			E.	19.00	21.40	25.00	28.40	31.60							
	36			B.	53.75	0.40	6.25	13.00	19.70							
	37	β Cephei	--	C.	16.85	22.30	28.30	34.20	40.00	26 28.34	1.76	- - -	16.05	21 26 46.15	3.99	
	38			D.	37.00	43.00	50.00	57.40	3.00							
	39			A.	31.20	34.00	36.50	39.18	42.00							
	40			B.	1.90	4.15	6.40	8.41	10.90							
	41	ε Pegasi	--	C.	31.00	32.81	34.90	36.80	39.00	36 34.87	0.51	- - -	16.06	21 36 51.44	2.44	
	42			D.	58.80	1.00	3.48	5.52	8.50							
	43			E.	27.75	30.00	33.11	36.21	38.80							
	44			A.	52.05	55.60	58.71	1.46	5.20							
	45			B.	28.24	31.25	34.00	36.20	39.20							
	46	Piscis Austral. (7714)	--	C.	2.22	4.90	7.28	9.82	12.30	1 7.31	0.09	- - -	16.07	22 1 23.47	2.72	
	47			D.	35.50	38.00	40.80	43.57	46.13							
	48			E.	9.40	12.70	16.30	19.60	22.33							
	49			A.	23.10	26.10	28.90	31.80	35.30							
	50			B.	57.60	0.40	2.63	5.00	7.78							
	51	λ Piscis Austral. (7750)	--	C.	30.00	32.48	34.60	36.85	39.40	5 34.58	+ 0.15	- - -	+ 16.08	22 5 50.81	— 2.66	
	52			D.	1.48	3.80	6.40	9.18	11.47							
	53			E.	33.90	36.65	40.00	43.32	46.27							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s	s	s.	s.	s.
Sept. 23, 19.6	+ 15.95	+ 0.053	+ 0.483	+ 0.518	— 0.049

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
1850. Sept. 23	1			A.	3.21	6.30	8.80	11.12	14.30							
	2			B	34.10	36.58	38.50	40.51	43.10							
	3	Neptune - - -	E.	C.	3.00	5.20	7.20	9.29	11.20	28 7.19	+ 0.34	- - -	+ 16.11	22 28 23.64	- - -	B.
	4			D.	31.30	33.20	35.50	38.17	40.30							
	5			E.	0.30	2.80	6.00	8.60	11.10							
	6			A.	41.10	14.15	46.52	49.20	52.30							
	7			B.	12.00	14.41	16.51	18.80	21.10							
	8	ζ Pegasi - - - -	--	C.	41.00	43.10	45.10	47.00	49.10	33 45.06	0.52	- - -	16.11	22 34 1.69	— 2.62	
	9			D.	9.00	11.00	13.50	16.00	18.00							
	10			E.	37.70	40.50	43.60	46.69	49.20							
	11			A.	23.34	25.98	28.80	31.72	34.33							
24	12			B.	53.78	55.75	58.30	0.86	2.92							
	13	Sun, 2d L. - - -	W.	C.	22.50	24.40	26.39	28.60	30.30	5 26.49	0.37	— 64.07	15.72	12 4 38.51	- - -	K.
	14			D.	50.00	52.70	54.70	56.82	59.05							
	15			E.	18.58	21.69	24.30	26.80	29.79							
	16			A.	0.95	3.38	6.24	9.69	12.10							
	17			B.	32.24	34.34	36.72	39.33	41.27							
	18	Mercury, 1st L. -	--	C.	1.52	3.49	5.59	7.57	9.60	22 5.51	0.23	+ 0.28	15.72	13 22 21.74	- - -	
	19			D.	29.69	32.15	34.18	36.43	38.90							
	20			E.	59.00	1.90	4.60	7.00	10.00							
	21			A.	3.69	6.24	9.20	12.54	15.20							
	22			B.	36.10	38.30	40.87	43.39	45.49							
	23	Venus, 1st L. - -	--	C.	6.19	8.48	10.69	12.73	14.00	57 10.41	0.13	+ 0.75	15.72	14 57 27.01	- - -	
	24			D.	35.81	38.40	40.57	42.71	45.28							
	25			E.	5.00	8.37	10.84	13.58	16.72							
	26			A.	10.80	13.22	16.00	19.24	21.80							
27	27			B.	42.00	44.13	46.60	49.05	51.10							
	28	ζ Aquilæ - - - -	--	C.	11.40	13.51	15.53	17.48	19.78	58 0.67	15.08	- - -	16.64	18 58 32.39	1.55	B.
	29			D.	39.78	42.20	44.40	46.48	49.00							
	30			--	- -	- -	- -	- -	- -							
	31			A.	37.80	40.12	43.10	46.00	48.40							
	32			B.	8.20	10.30	12.70	15.15	17.39							
	33	δ Aquilæ - - - -	--	C.	36.60	38.77	40.90	42.70	44.80	17 40.98	0.27	- - -	16.64	19 17 57.89	1.75	
	34			D.	4.40	6.82	9.00	11.00	13.35							
	35			E.	19.00	22.50	24.40	26.90	29.82							
	36			A.	48.40	51.15	54.00	57.00	59.40							
	37			B.	19.40	21.60	23.95	26.40	28.40							
	38	γ Aquilæ - - - -	--	C.	48.52	50.40	52.46	54.49	56.40	38 52.45	0.27	- - -	16.64	19 39 9.36	1.81	
	39			D.	16.40	18.90	21.00	23.20	25.50							
	40			E.	45.00	48.50	51.00	53.48	56.40							
	41			A.	8.95	11.40	14.30	17.38	20.00							
	42			B.	39.78	41.85	44.38	46.80	49.00							
	43	α Aquilæ - - - -	--	C.	8.53	10.52	12.68	14.75	16.78	43 12.64	0.27	- - -	16.64	19 43 29.55	1.86	
	44			D.	36.51	38.80	41.00	43.11	45.49							
	45			E.	5.29	8.30	10.90	13.20	16.27							
	46			A.	38.25	40.70	43.50	46.50	49.10							
	47			B.	9.00	11.00	13.45	15.70	17.85							
	48	β Aquilæ - - - -	--	C.	37.49	39.33	41.50	43.70	45.68	47 41.56	+ 0.27	- - -	+ 16.64	19 47 58.47	— 1.88	
	49			D.	5.40	7.70	9.88	11.89	14.25							
	50			E.	34.00	37.00	39.39	41.93	44.90							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s	s.	s.	s.	s.
Sept. 23, 19.6	+ 15.95	+ 0.053	E. + 0.483	+ 0.518	— 0.049
			W. + 0.391	+ 0.680	— 0.013
24, 13.0	(15.72)	.0			
27, 19.5	+ 16.64	+ .007	+ 0.312	+ 0.026	- 0.038

Sept. 25. Diaphragm taken out and micrometer readjusted.

TE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R Ascension.	Reduct'n to 1850.0	Observer.
50.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m s.	s.	
t. 28	1			A.	39. 60	42. 00	44. 90	47. 89	50. 32							
	2			B.	10. 20	12. 20	14. 70	17. 10	19. 00							
	3	Sun, 1st L. . . .	W.	C.	38. 79	40. 80	42. 70	44. 60	46. 80	17 42. 74	+ 0. 27					
	4			D.	6. 40	8. 94	11. 00	13. 11	15. 30							
	5			E.	34. 90	38. 12	40. 42	43. 00	45. 74							
	6			B.	18. 52	20. 73	23. 00	25. 43	27. 46			(64. 24	+ 16. 41	12 19 3. 66	. . .	K.
	7			C.	47. 13	49. 10	51. 19	53. 24	55. 00							
	8	Sun, 2d L. . . .	..	D.	14. 91	17. 23	19. 30	21. 50	23. 90	20 5. 61	— 14. 13					
	9			E.	43. 40	46. 36	49. 00	51. 44	54. 36							
. 1	10	Polaris, S. P. . .	..	C.	58. 00	43. 00	23. 00	8. 00	50. 00	6 24. 40	— 0. 26	. . .	— 14. 35	13 6 9. 79	— 70. 11	B.
	11†			A.	43. 31	46. 00	49. 00	52. 30	55. 12							
	12			B.	16. 10	18. 41	21. 11	23. 74	26. 00							
	13	Venus, 1st L . .	..	C.	47. 10	49. 21	51. 49	53. 30	55. 80	25 51. 37	+ 0. 27	+ 0. 82	14. 20	15 25 38. 26	. . .	
	14			D.	16. 70	19. 13	21. 70	24. 00	26. 60							
	15			E.	47. 51	51. 00	53. 50	55. 40	59. 60							
	16			A.	3. 71	6. 20	9. 17	12. 00	14. 65							
	17			B.	34. 25	36. 25	38. 78	41. 39	43. 26							
	18	α Serpentis . . .	..	C.	3. 00	5. 00	7. 11	9. 17	11. 18	37 7. 07	0. 27	. . .	14. 19	15 36 53. 15	0. 51	
	19			D.	30. 81	33. 30	35. 35	37. 50	39. 80							
	20			E	59. 30	2. 49	5. 00	7. 50	10. 50							
	21			A.	8. 30	10. 71	13. 60	16. 49	19. 10							
	22			B.	38. 61	40. 72	43. 10	45. 72	47. 70							
	23	δ Aquilæ	..	C.	7. 11	9. 20	11. 30	13. 30	15. 39	18 11. 27	0. 27	. . .	13. 95	19 17 57. 59	1. 69	
	24			D.	35. 00	37. 30	39. 41	41. 45	44. 00							
	25			E.	3. 31	6. 35	8. 80	11. 40	14. 40							
	26			A.	19. 00	21. 37	24. 28	27. 30	30. 00							
	27			B.	50. 00	52. 20	54. 60	57. 00	59. 00							
	28	γ Aquilæ	..	C.	19. 00	20. 89	23. 00	25. 00	27. 08	39 22. 97	0. 27	. . .	13. 93	19 39 9. 31	1. 74	
	29			D.	29. 00	49. 43	51. 45	53. 60	56. 00							
	30			E.	15. 68	18. 86	21. 32	24. 00	27. 00							
	31			A.	39. 30	42. 00	44. 79	47. 70	50. 29							
	32			B.	10. 80	12. 40	14. 89	17. 39	19. 44							
	33	α Aquilæ	..	C.	39. 00	41. 00	43. 00	45. 00	47. 40	43 43. 15	0. 27	. . .	13. 92	19 43 29. 50	1. 80	
	34			D.	7. 00	9. 50	12. 00	13. 80	16. 00							
	35			E.	35. 71	38. 70	41. 37	43. 85	46. 80							
	36			A.	8. 90	11. 30	14. 00	17. 00	19. 60							
	37			B.	39. 20	41. 29	43. 70	46. 30	48. 40							
	38	β Aquilæ	..	C.	8. 00	10. 11	12. 00	14. 00	16. 00	48 12. 04	0. 27	. . .	13. 91	19 47 58. 40	1. 82	
	39			D.	35. 76	38. 20	40. 20	42. 12	44. 80							
	40			E.	5. 00	7. 40	10. 00	12. 40	15. 33							
	41			A.	6. 00	9. 45	13. 34	17. 55	21. 00							
	42			B.	48. 78	51. 70	55. 00	58. 49	1. 44							
	43	α Cygni	..	C.	28. 81	31. 61	34. 70	37. 38	40. 24	36 34. 58	0. 28	. . .	13. 86	20 36 21. 00	2. 09	
	44			D.	8. 00	11. 20	14. 19	17. 18	20. 40							
	45			E.	47. 72	52. 20	55. 70	59. 15	3. 25							
	46			A.	6. 80	9. 70	13. 37	17. 20	20. 40							
	47			B.	45. 40	48. 00	51. 00	54. 00	56. 60							
	48	61¹ Cygni	..	C.	21. 50	24. 00	26. 50	29. 00	31. 85	0 26. 55	+ 0. 28	. . .	— 13. 84	21 0 12. 99	— 2. 51	
	49			D.	56. 40	59. 50	2. 00	4. 68	7. 75							
	50			E.	32. 77	36. 30	39. 73	42. 70	46. 51							

12 Extremely unsteady.

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h	s.	s.	s	s.	s.
Sept. 28, 13. 0	+ (16. 41)	. .	+ 0. 312	+ 0. 026	— 0. 038
Oct 1, 20. 8	— 13. 85	+ 0. 065			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp	Set.	I.	II.	III.	IV.	V.	Mean	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n 1850.0
1850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.
Oct. 1	1			A.	36.60	39.24	42.60	46.15	49.00						
	2			B.	11.55	14.00	16.72	19.58	21.87						
	3	ζ Cygni	W.	C.	44.28	46.68	49.00	51.20	53.52	6 48.96	+ 0.28	- - -	— 13.83	21 6 35.41	— 2.
	4			D.	16.00	19.00	21.20	23.55	26.40						
	5			E.	48.65	52.36	55.20	58.10	1.49						
	6			A.	51.30	53.74	56.63	59.50	2.18						
	7			B.	22.19	24.28	26.60	29.20	31.25						
	8	Neptune	--	C.	51.00	53.00	55.20	57.20	59.10	27 55.20	0.26	- - -	13.75	22 27 41.71	- -
	9			D.	19.13	21.50	24.00	26.00	28.26						
	10			E.	48.00	51.20	53.69	56.49	59.30						
	11			A.	10.82	13.38	16.40	19.32	22.00						
	12			B.	42.00	44.00	46.30	49.00	51.00						
	13	ζ Pegasi	--	C.	10.79	13.00	15.00	17.00	19.10	34 14.97	0.27	- - -	13.73	22 34 1.51	2.
	14			D.	39.00	41.30	43.33	45.67	48.00						
	15			E.	7.80	11.00	14.00	16 00	19.00						
	16			A.	43.40	46.12	49.00	52.62	55.52						
	17			B.	17.79	20.20	23.00	25.80	28.00						
	18	α Andromedæ . .	--	C.	50.40	52.62	54.84	57.30	59.50	0 54.89	0.28	- - -	13.63	0 0 41.54	3.
	19			D.	21.68	24.52	26.90	29.43	32.12						
	20			E.	53.80	57.45	0.40	3.30	6.50						
	21			A.	42.20	44.67	48.00	51.00	53.40						
	22			B.	13.60	15.73	18.19	20.80	22.70						
	23	γ Pegasi	--	C.	43.15	45.20	47.42	49.35	51.50	5 47.18	0.27	- - -	13.62	0 5 33.83	2.
	24			D.	11.00	14.00	16.24	18.30	20.60						
	25			E.	40.90	44.00	46.60	49.00	52.00						
	26			A.	0.80	3.22	6.21	9.23	11.74						
	27			B.	31.79	33.80	36.37	38.79	41.00						
	28	Flora	--	C.	0.70	2.90	4.90	6.90	9.00	16 4.89	0.26	- - -	13.61	0 15 51.54	- - -
	29			D.	28.80	31.48	33.59	35.75	38.10						
	30			E.	57.80	0.70	3.60	6.10	9.00						
3	31			B.	55.00	57.00	59.35	2.00	4.11						
	32	Sun, 2d L. . . .	--	C.	23.50	25.48	27.61	29.60	31.51	38 27.60	+ 0.27	— 64.34	12.18	12.37 11.35	- - -
	33			D.	51.30	53.49	55.74	58.50	0.30						
	34	Polaris, S. P. . .	--	C.	49.00	6.00	24.00	41.00	0.00	6 24.00	— 0.26	- - -	12.16	13 6 11.58	— 70.
	35			A.	54.70	57.40	0.30	3.54	6.00						
	36			B.	26.90	29.18	31.80	34.20	36.40						
	37	α Bootis	--	C.	57.20	59.30	1.59	3.80	6.00	9 1.57	+ 0.28	- - -	12.10	14 8 49.75	+ 0.
	38			D.	26.62	29.30	31.41	33.70	36.00						
	39			E.	57.00	0.20	2.75	5.39	8.50						
	40			A.	27.31	30.00	33.29	36.70	39.48						
	41			B.	1.71	4.00	6.78	9.45	11.60						
	42	ε Bootis	--	C.	33.79	36.00	38.51	40.61	43.00	38 38.37	0.28	- - -	12.07	14 38 26.58	+ 0.
	43			D.	5.00	7.77	10.00	12.54	15.00						
	44			E.	37.00	40.50	43.40	46.15	49.54						
	45			A.	43.00	45.51	48.33	51.51	54.00						
	46			B.	14.49	16.57	19.00	21.66	23.70						
	47	α^2 Libræ	--	C.	44.00	46.00	48.20	50.00	52.30	43 48.16	0.26	- - -	12.07	14.43 36.35	— 0.
	48			D.	12.46	15.20	17.44	19.69	22.00						
	49			E.	42.05	45.29	47.89	50.40	53.40						
	50			B.	36.53	38.60	41.00	43.31	45.57						
	51	β Libræ	--	C.	5.20	7.30	9.48	11.40	13.56	9 9.39	+ 0.26	- - -	— 12.04	15 8 57.61	— 0.
	52			D.	33.15	35.58	37.80	40.00	42.40						

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Oct. 1, 20.8	— 13.85	+ 0.065	+ 0.312	+ 0.026	— 0.038
3, 19.7	— 11.78	+ 0.057			

Oct. 3. Clock errors very discordant.

TE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					TIMES OF TRANSIT OVER WIRES.						CORRECTIONS FOR—					
50.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
3	1			A.	0.50	3.00	6.20	9.40	12.18							
	2			B.	33.55	35.70	38.29	41.11	43.00							
	3	Venus, 1st L.	W.	C	4.29	6.44	9.00	11.00	13.24	35 8.80	+ 0.26	+ 0.85	— 12.01	15 34 57.90	- - -	B.
	4			D.	34.52	37.00	39.40	41.70	44.12							
	5			E.	5.38	8.68	11.68	14.20	17.40							
	6			A.	37.79	40.00	43.18	46.00	48.49							
	7			B.	8.50	10.69	13.00	15.52	17.58							
	8	α Aquilæ	--	C.	37.19	39.12	41.38	43.40	45.60	43 41.33	0.27	- - -	11.78	19 43 29.82	— 1.76	
	9			D.	5.40	7.81	9.80	11.85	14.19							
	10			E.	33.80	36.73	39.52	42.00	44.81							
	11	β Aquilæ	--	C	6.31	8.30	10.39	12.30	14.42	48 10.34	0.27	- - -	11.77	19 47 58.84	1.78	
	12			A.	53.00	55.40	58.20	1.33	3.80							
	13			B.	24.20	26.35	29.00	31.21	33.32							
	14	α^2 Capricorni	--	C.	53.50	55.40	57.60	59.50	1.79	9 57.51	0.26	- - -	11.76	20 9 46.01	2.03	
	15			D.	21.70	24.00	26.20	28.50	31.00							
	16			E.	50.80	54.00	56.62	59.00	2.20							
	17			A.	33.38	36.00	39.00	42.60	45.50							
	18			B.	8.14	10.50	13.32	16.00	18.43							
	19	ζ Cygni	--	C.	41.00	43.40	45.80	48.00	50.30	6 45.65	0.28	- - -	11.70	21 6 34.23	2.21	
	20			D.	12.80	15.60	18.00	20.50	23.00							
	21			E.	45.57	49.12	52.00	55.00	58.20							
	22			A.	4.00	6.78	10.00	13.82	16.52							
	23			B.	39.74	42.28	45.20	48.00	50.38							
	24	Piscis Aust., (7458)	--	C.	13.30	15.80	18.00	20.40	23.00	20 18.12	0.25	- - -	11.69	21 20 6.68	2.49	
	25			D.	46.00	48.50	51.00	53.60	56.40							
	26			E.	19.50	23.20	26.15	29.00	32.50							
	27			A.	59.00	1.55	4.20	7.05	10.00							
	28			B.	29.21	31.50	33.82	36.30	38.40							
	29	ε Pegasi	--	C.	58.20	0.20	2.20	4.20	6.32	37 2.44	0.27	- - -	11.67	21 36 51.04	2.34	
	30			D.	26.29	28.80	30.80	33.00	35.30							
	31			E.	55.50	58.40	1.00	3.43	6.41							
	32			A.	14.49	16.60	19.53	22.60	25.00							
	33			B.	44.60	47.00	49.14	52.00	53.80							
	34	α Aquarii	--	C.	13.10	15.22	17.28	19.15	21.48	57 17.43	0.27	- - -	11.65	21 57 6.05	2.41	
	35			D.	40.78	43.30	45.51	47.51	50.14							
	36			E	10.00	13.00	15.44	18.00	21.00							
	37			A.	38.55	41.00	43.80	47.00	49.60							
	38			B.	9.50	11.60	14.00	16.60	18.80							
	39	Neptune	--	C.	38.74	41.00	42.82	44.70	47.00	27 42.74	0.26	- - -	11.62	22 27 31.38	- - -	
	40			D.	6.55	9.12	11.20	13.48	16.10							
	41			E.	35.80	39.00	41.50	44.11	47.00							
	42			A.	8.60	11.00	14.00	17.00	19.37							
	43			B.	39.57	41.54	44.00	46.49	48.50							
	44	ζ Pegasi	--	C.	8.48	10.30	12.50	14.50	16.78	34 12.51	0.27	- - -	11.61	22 34 1.17	2.57	
	45			D.	36.53	39.00	41.00	43.29	45.58							
	46			E.	5.18	8.46	11.00	13.40	16.60							
	47			A.	21.65	24.40	27.80	31.11	34.30							
	48			B.	57.00	59.25	2.20	4.90	7.10							
	49	α Piscis Australis	--	C.	30.00	32.00	34.69	36.85	39.42	49 34.60	+ 0.25	- - -	— 11.60	22 49 23.25	— 2.67	
	50			D.	2.10	4.60	7.00	9.60	12.41							
	51			E.	34.80	38.41	41.36	44.25	47.80							

Date.	Clock.	Hourly rate.	VALUE OF m.	VALUE OF n.	VALUE OF c.
h.	s.	s.	s.	s.	s.
Oct. 3, 19.7	— 11.78	+ 0.057	+ 0.312	+ 0.026	— 0.038

DATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					TIMES OF TRANSIT OVER WIRES.						CORRECTIONS FOR—					
1850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Oct. 3	1			A.	26.70	28.80	31.78	35.00	37.58							
	2			B.	57.90	59.95	2.37	5.05	7.13							
	3	α Pegasi	W.	C.	27.30	29.52	31.60	33.78	35.70	57 31.46	+ 0.27	- - -	— 11.59	22 57 20.14	— 2.68	B.
	4			D.	55.80	58.20	0.30	2.70	5.00							
	5			E.	25.29	28.30	30.80	33.40	36.46							
	6			A.	58.00	7.83	21.18	34.00	44.32							
	7			B.	10.00	19.00	30.40	41.00	49.36							
	8	γ Cephei	--	C.	16.00	24.80	34.18	42.65	51.00	33 33.26	0.25	- - -	11.56	23 33 21.95	7.92	
	9			D.	16.60	27.20	35.80	45.00	55.70							
	10			E.	21.48	35.33	45.00	57.00	8.55							
	11			A.	39.80	42.23	45.40	48.40	51.00							
	12			B.	11.16	13.48	16.00	18.30	20.42							
	13	γ Pegasi	--	C.	40.61	42.70	45.00	47.00	49.10	5 44.83	0.27	- - -	11.53	0 5 33.57	— 2.85	
	14			D.	9.13	11.70	13.70	16.00	18.55							
	15			E.	38.77	41.50	44.21	46.70	49.80							
	16			A.	15.22	17.79	20.80	23.71	26.50							
	17			B.	46.17	48.30	50.70	53.20	55.27							
	18	Flora	--	C.	15.26	17.31	19.28	21.50	23.70	14 14.43	0.26	- - -	11.52	0 14 8.17	- - -	
	19			D.	43.48	45.80	48.00	50.20	52.58							
	20			E.	12.60	15.52	18.23	20.85	23.68							
	21			A.	23.10	26.00	29.00	32.30	35.32							
	22			B.	57.40	59.55	2.41	5.22	7.62							
5	23	ε Bootis	--	C.	29.80	32.00	34.24	36.60	38.72	38 34.19	0.28	- - -	8.62	14 38 25.85	+ 0.53	
	24			D.	1.00	3.70	5.80	8.29	11.00							
	25			E.	33.00	36.39	39.20	42.00	45.20							
	26			B.	10.39	12.21	14.90	17.50	19.41							
	27†	α^2 Libræ	--	C.	40.00	42.00	44.00	46.00	48.20	42 43.96	0.26	- - -	8.61	14 42 35.61	— 0.55	
	28			D.	8.20	10.80	13.00	15.14	17.60							
	29			A.	17.75	20.30	23.37	27.00	29.60							
	30			B.	52.00	54.16	56.85	59.70	2.00							
	31	α Coronæ Borealis	--	C.	23.80	26.00	28.40	30.70	33.00	28 28.40	0.28	- - -	8.57	15 28 20.11	+ 0.03	
	32			D.	55.00	57.60	59.80	2.27	5.00							
	33			E.	27.00	30.40	33.20	35.80	39.30							
	34			A.	13.50	16.18	19.32	22.80	25.40							
	35			B.	46.75	48.80	51.50	54.20	56.45							
	36	Venus, 1st L.	--	C.	18.00	20.11	22.40	24.50	26.71	43 22.27	0.26	+ 0.88	8.55	15 43 14.86	- - -	
	37			D.	48.18	50.73	53.00	55.30	57.84							
	38			E.	19.20	22.16	25.00	27.78	31.00							
	39			A.	2.70	5.50	7.78	11.00	13.40							
	40			B.	33.00	35.30	37.60	40.19	42.00							
	41	δ Aquilæ	--	C.	1.58	3.50	5.60	7.68	9.77	18 5.63	0.27	- - -	8.31	19 17 57.59	— 1.62	
	42			D.	29.38	31.70	33.70	36.00	38.20							
	43			E.	57.65	0.60	3.11	5.58	8.74							
	44			A.	13.40	15.80	18.69	21.59	24.15							
	45			B.	44.31	46.30	48.60	51.18	53.45							
	46	γ Aquilæ	--	C.	13.00	15.36	17.30	19.25	21.35	39 17.27	0.27	- - -	8.29	19 39 9.25	1.67	
	47			D.	41.38	43.78	45.90	48.00	50.40							
	48			E.	10.20	13.18	15.81	18.20	21.20							
	49			A.	33.80	36.33	39.00	42.00	44.63							
	50			B.	4.70	6.63	9.00	11.60	13.60							
	51	α Aquilæ	--	C.	33.48	35.51	37.60	39.50	41.73	43 37.47	+ 0.27	- - -	— 8.29	19 43 29.45	— 1.73	
	52			D.	1.40	3.77	6.00	8.00	10.30							
	53			E.	30.10	33.05	35.61	38.15	41.18							

Date.	Clock.	Hourly rate.	VALUE OF *m.*	VALUE OF *n.*	VALUE OF *c.*
h.	s.	s.	s.	s.	s.
Oct. 3, 19.7	— 11.78	+ 0.057	+ 0.312	+ 0.026	— 0.038
5, 18.9	— 8.34	+ 0.067			

27. Extremely dim and indistinct.

TE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
50.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
. 5	1			A.	3.00	5.48	8.31	11.40	14.00							
	2			B.	33.80	35.78	38.20	40.80	42.88							
	3	β Aquilæ	W.	C.	2.36	4.40	6.40	8.38	10.41	48 6.40	+ 0.27	- - -	— 8.28	19 47 58.39	— 1.75	B.
	4			D.	30.17	32.62	34.80	36.89	39.10							
	5			E.	58.60	1.67	4.20	6.70	9.70							
7	6			A.	48.00	52.00	14.00	34.00	42.00							
	7			B.	10.00	37.00	17.50	0.00	22.00							
	8	Polaris, S. P. . .	--	C.	54.00	36.00	19.00	1.00	43.00	6 28.47	— 10.74	- - -	5.89	13 6 11.84	70.69	
	9			D.	6.00	53.50	14.00	43.50	26.50							
	10			.	51.00	17.00	28.00	27.00	- -							
	11			A.	47.80	50.41	53.55	56.80	59.45							
	12			B.	20.39	22.53	25.00	27.77	30.00							
	13	α Bootis	--	C.	50.44	52.69	55.00	57.00	59.20	8 54.90	+ 0.28	- - -	5.82	14 8 49.36	+ 0.07	
	14			D.	20.00	22.48	24.70	27.00	29.50							
	15			E.	50.20	53.51	56.27	58.82	2.00							
	16			A.	20.55	23.45	26.40	30.50	32.80							
	17			B.	55.11	57.17	59.80	2.78	5.00							
	18	ε Bootis	--	C.	27.18	29.28	31.76	34.00	36.39	38 31.68	0.28	- - -	5.78	14 38 26.18	+ 0.15	
	19			D.	58.30	1.15	3.48	5.78	8.43							
	20			E.	30.30	33.68	36.80	39.51	42.80							
	21			A.	15.20	17.80	21.10	24.10	27.20							
	12			B.	49.40	51.60	54.34	57.00	59.30							
	23	α Coronæ Borealis .	--	C.	21.35	23.40	25.80	28.10	30.40	28 25.84	0.28	- - -	5.71	15 28 20.41	0.00	
	24			D.	52.40	55.00	57.25	59.70	2.50							
	25			E.	24.23	27.80	30.73	33.38	36.70							
	26			A.	55.78	58.12	1.00	4.00	6.51							
	27			B.	26.38	28.42	30.71	33.20	35.20							
	28	α Serpentis . . .	--	C.	55.00	56.85	59.00	1.00	3.00	36 59.03	0.27	- - -	5 70	15 36 53.60	— 0.44	
	29			D.	22.70	25.20	27.30	29.40	32.00							
	30			E.	51.45	54.43	57.00	59.60	2.50							
	31			A.	26.18	29.00	32.10	35.11	38.00							
	32			B.	59.60	1.81	4.60	7.30	9.50							
	33	Venus, 1st L. . .	--	C.	30.90	33.50	35.30	37.41	39.85	51 35.24	0.26	+ 0.90	5.68	15 51 30.72	- - -	
	34			D.	1.00	3.90	6.00	8.20	10.90							
	35			E.	32.20	35.53	38.38	41.00	44.36							
	36			A.	10.47	12.80	15.58	18.60	21.20							
	37			B.	41.30	43.30	45.79	48.39	50.37							
	38	γ Aquilæ	--	C.	10.11	12.55	14.58	16.60	18.40	39 14.32	0.27	- - -	5.40	19 39 9.19	1.63	
	39			D.	38.39	40.71	42.80	44.90	47.31							
	40			E.	7.11	10.24	12.80	15.40	18.41							
	41			A.	30.80	33.30	36.30	39.35	41.85							
	42			B.	1.79	3.52	6.20	8.40	10.53							
	43	α Aquilæ	--	C.	30.50	32.61	34.55	36.80	38.80	43 34.55	0.27	- - -	5.40	19 43 29.42	1.69	
	44			D.	58.32	1.00	3.00	5.18	7.53							
	45			E.	27.18	30.05	32.79	35.11	38.15							
	46			A.	0.00	2.70	5.60	8.56	11.20							
	47			B.	30.80	32.80	35.50	37.79	40.00							
	48	β Aquilæ	--	C.	59.30	1.29	3.50	5.55	7.40	48 3.47	0.27	- - -	5.39	19 47 58.35	1.71	
	49			D.	27.20	29.55	31.80	33.90	36.17							
	50			E.	55.73	58.73	1.26	3.67	6.80							
	51			A.	46.08	48.60	51.35	54.40	56.80							
	52			B.	17.52	19.40	22.00	24.50	26.40							
	53	α^2 Capricorni . . .	--	C.	46.58	48.70	50.70	52.64	54.82	9 50.67	+ 0.26	- - -	+ 5.37	20 9 45.56	— 1.96	
	54			D.	14.80	17.55	19.73	21.57	24.22							
	55			E.	44.00	47.00	49.90	52.25	55.28							

Oct. 7. Stars unsteady.

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Oct. 7, 19.7	— 5.40	+ 0.075	+ 0.312	+ 0.026	— 0.038

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES.								CORRECTIONS FOR—			Observed R. Ascension.	Reduct'n to 1850.0	Observer.
			Clamp.	Set.	I.	II.	III.	IV.	V.	Mean.	Inst.	Semi-diam	Clock.			
1849.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Oct. 7	1			A.	52.40	54.81	57.82	0.75	3.50							
	2			B.	23.30	25.32	28.00	30.55	32.58							
	3	ε Pegasi - - - -	W.	C.	52.20	54.50	56.50	58.40	0.70	36 56.33	+ 0.27	- - -	— 5.25	21 36 51.35	— 2.29	B.
	4			D.	20.25	22.56	24.60	27.00	29.43							
	5			E.	49.05	52.20	54.70	57.13	0.50							
	6			A.	9.00	11.29	14.32	17.15	19.80							
	7			B.	39.40	41.51	44.20	46.25	48.28							
	8	α Aquarii - - - -	--	C.	8.00	10.00	12.00	14.00	16.12	58 11.92	0.26	- - -	5.23	21 58 6.95	2.38	
	9			D.	35.40	37 80	40.00	42.10	44.50							
	10			E.	5.81	6.80	9.40	11.90	15.00							
	11			A.	14.70	17.00	20.00	23.12	25.80							
	12			B.	45.26	47.51	49.90	52.55	54.61							
	13	Neptune - - -	--	C.	14.48	16.41	18.51	20.58	22.65	27 18.59	0.26	- - -	5.19	22 27 13.66	- - -	
	14			D.	42.77	45.10	47.00	49.20	51.82							
	15			E.	11.40	14.80	17.20	19.67	22.80							
	16			A.	2.28	5.00	7.60	10.62	13.29							
	17			B.	33.38	35.20	37.70	40.40	42.25							
	18	ζ Pegasi - - - -	--	C.	2.00	4.10	6.20	8.00	10.39	34 6.21	0.27	- - -	5.18	22 34 1.30	2.55	
	19			D.	30.05	32.61	34.70	36.80	39.33							
	20			E.	59.00	2.12	4.68	7.20	10.20							
	21			A.	15.10	18.38	21.45	25.00	28.00							
	22			B.	50.70	53.23	56.00	59.00	1.00							
	23	α Piscis Australis -	--	C.	23.68	26.17	28.42	30.72	33.38	49 28.39	0.25	- - -	5.17	22 49 23.47	2.64	
	24			D	55.80	58.40	1.00	3.10	5.79							
	25			E.	28.80	32.29	35.13	38.00	41.28							
	26			A.	34.70	37.30	40.60	44.00	47.00							
	27			B.	9.30	11.50	14.50	17.30	19.50							
	28	α Andromedæ - -	--	C.	42.50	44.10	46.52	48.80	50.90	0 46.26	0.28	- - -	5.07	0 0 41.47	3.09	
	29			D.	13.00	15.70	18.19	20.80	23.30							
	30			E.	45.40	48.65	51.52	54.20	57.70							
	31			A.	33.50	36.10	38.80	42.00	44.59							
	32			B.	5.00	7.08	9.60	12.00	14.20							
	33	γ Pegasi - - - -	--	C.	34.00	36.30	38.70	40.49	42.70	5 38.40	0.27	- - -	5.06	0 5 33.61	2.86	
	34			D.	2.57	5.23	7.37	9.60	11.90							
	35			E	32.12	34.85	37.70	40.10	43.60							
	36			A.	51.08	53.40	56.48	59.40	1.76							
	37			B.	22.10	24.00	26.60	29.38	31.20							
	38	Flora - - - -	--	C.	50.80	53.22	55.18	57.20	59.50	10 55.24	+ 0.26	- - -	5.05	0 10 50.45	- - -	
	39			D.	19.21	21.80	24.00	26.20	28.48							
	40			E.	48.50	51.48	54.00	56.52	59.60							
	41				19.87	32.56	44.30	54.38	6.20							
	42				16.18	31.68	44.29	57.00	7.69							
	43			B.	22.12	32.43	47.73	58.53	11.68							
	44				25.20	36.70	48.35	0.39	11.64							
	45				26.70	39.50	52.70	2.30	10.80							
	46				54.39	4.12	15.35	27.78	41.22							
	47				54.90	6.68	16.48	31.41	42.78							
8	48	Polaris, S. P. - -	--	C.	53.00	5.85	19.20	30.80	42.10	6 18.94	— 0.15	- - -	— 3.79	13 6 15.00	— 70.87	K.
	49				56.15	6.90	19.80	34.69	45.00							
	50				58.65	10.46	19.95	31.35	42.69							
	51				24.00	37.50	48.15	0.60	13.00							
	52				23.80	36.55	50.40	2.70	15.73							
	53			D.	29.80	39.32	55.80	6.00	16.00							
	54				26.20	40.82	55.00	5.85	19.00							
	55				30.00	41.00	55.50	7.20	18.10							

Date.	Clock.	Hourly rate.	VALUE OF		
			m.	n.	c.
h.	s.	s.	s.	s.	s.
Oct. 7, 19.7	— 5.40	+ 0.075	+ 0.312	+ 0.026	— 0.038
8, 14.2	— 3.69	+ 0.088			

ATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
		TIMES OF TRANSIT OVER WIRES.									CORRECTIONS FOR—					
850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
t. 8	1			A.	29.30	32.00	35.00	38.10	40.69							
	2			B.	1.60	3.60	6.20	8.80	10.88							
	3	η Bootis	W.	C.	31.62	33.80	36.00	38.00	40.15	47 35.95	+ 0.27	- - -	— 3.72	13 47 32.50	+ 0.01	K.
	4			D.	1.00	3.48	5.70	7.90	10.60							
	5			E.	31.10	34.20	36.80	39.58	42.71							
	6			A.	45.70	48.05	51.13	54.45	57.10							
	7			B.	18.09	20.05	22.74	25.39	27.39							
	8	α Bootis	--	C.	48.18	50.40	52.62	54.60	56.80	8 52.54	0.28	- - -	3.69	14 8 49.13	0.07	
	9			D.	17.65	20.09	22.40	24.59	27.08							
	10			E.	47.85	51.12	53.95	56.45	59.59							
	11			A.	18.24	21.00	24.36	27.64	30.36							
	12			B.	52.60	54.90	57.65	0.41	2.62							
	13	ε Bootis	--	C.	24.86	27.10	29.40	31.61	33.76	38 29.34	0.28	- - -	3.65	14 38 25.97	+ 0.16	
	14			D.	56.00	58.75	1.10	3.45	5.95							
	15			E.	28.15	31.56	34.37	37.26	40.42							
	16			A.	46.76	49.31	52.40	55.32	58.00							
	17			B.	19.00	21.20	23.60	26.39	28.49							
	18	Moon, 1st L. . .	--	C.	49.25	51.40	53.62	55.74	57.80	38 53.51	+ 0.26	+ 66.56	3.57	15 39 56.76	- - -	
	19			D.	18.60	21.29	23.25	25.40	28.00							
	20			E.	48.74	52.00	54.59	57.23	0.30							
	21			B.	4.00	6.30	8.80	11.30	13.40							
	22	Venus, 1st L. . .	--	C.	35.00	37.00	39.43	41.74	43.87	55 55.21	— 15.52	+ 0.91	3.54	15 55 37.06	- - -	
	23			D.	5.00	7.00	10.00	12.80	15.15							
	24			E.	36.74	39.90	42.80	45.50	48.54							
9	25			A.	51.05	53.58	56.15	59.30	1.90							
	26			B.	22.00	23.70	26.20	28.50	30.80							
	27	α Serpentis . . .	--	C.	50.30	52.52	54.60	56.58	58.60	36 54.48	+ 0.27	- - -	1.49	15 36 53.26	— 0.42	B.
	28			D.	18.20	20.60	23.00	25.00	27.36							
	29			E.	46.80	49.78	52.40	55.50	58.00							
	30			A.	33.90	36.70	39.70	43.11	46.00							
	31			B.	7.39	10.00	12.58	15.30	17.50							
	32	Venus, 1st L. . .	--	C.	39.00	41.20	43.25	45.32	47.80	59 43.35	0.26	+ 0.92	1.46	15 59 43.07	- - -	
	33			D.	9.30	12.00	14.20	16.60	19.20							
	34			E.	40.65	44.10	46.80	49.43	52.70							
	35			A.	6.20	8.70	11.57	14.50	17.05							
	36			B.	37.05	39.15	41.60	44.20	46.20							
	37	γ Aquilæ	--	C.	5.80	8.10	10.00	12.10	14.15	39 10.11	0.27	- - -	1.22	19 39 9.16	1.60	
	38			D.	34.15	36.63	38.65	40.90	43.20							
	39			E.	3.00	6.00	8.65	11.10	14.10							
	40			A.	26.83	29.20	32.00	35.00	37.40							
	41			B.	57.50	59.50	2.00	4.40	6.45							
	42	α Aquilæ	--	C.	26.15	28.20	30.32	32.30	34.35	43 30.29	0.27	- - -	1.22	19 43 29.34	1.66	
	43			D.	54.20	56.65	58.55	0.60	3.25							
	44			E.	23.00	26.00	28.47	30.90	34.00							
	45			A.	56.00	58.60	1.25	4.20	6.80							
	46			B.	26.79	28.50	31.00	33.50	35.40							
	47	β Aquilæ	--	C.	55.00	57.11	59.12	1.20	3.30	47 59.20	+ 0.27	- - -	— 1.21	19 47 58.26	— 1.68	
	48			D.	23.09	25.30	27.40	29.45	31.89							
	49			E.	51.42	54.55	57.10	59.60	2.45							

Oct. 9. Recording apparatus works very irregularly.

Date.	Clock.	Hourly rate.	VALUE OF m.	VALUE OF n.	VALUE OF c.
h.	s.	s.	s.	s.	s.
Oct. 8, 14.2	— 3.69	+ 0.088	+ 0.312	+ 0.026	— 0.038
9, 20.4	— 1.17	0.066			

DATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
			TIMES OF TRANSIT OVER WIRES.								CORRECTIONS FOR—					
1850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Oct. 9	1			A.	42.50	44.30	47.30	50.50	53.10							
	2			B.	13.05	15.25	17.70	20.40	22.30							
	3	α^2 Capricorni - - -	W.	C.	42.10	44.50	46.60	48.50	50.59	9 46.49	+ 0.25	- - -	— 1.19	20 9 45.55	— 1.93	B.
	4			D.	10.74	12.80	15.48	17.51	19.90							
	5			E.	40.00	43.00	45.39	48.13	51.00							
	6			A.	53.30	56.80	1.00	4.90	8.50							
	7			B.	36.25	39.00	42.30	46.00	48.79							
	8	α Cygni - - - -	--	C.	16.15	19.00	21.65	24.75	27.70	36 21.90	0.28	- - -	1.16	20 36 21.02	1.89	
	9			D.	55.14	58.45	1.30	4.45	7.85							
	10			E.	35.20	39.20	43.00	46.40	50.50							
	11	β Cephei - - - -	--	C.	35.00	41.00	46.50	52.30	58.40	26 46.64	0.27	- - -	1.10	21 26 45.81	3.23	
	12			A.	5.00	7.25	10.00	13.20	15.65							
	13			B.	35.20	37.27	39.90	42.25	44.20							
	14	α Aquarii - - - -	--	C.	3.65	5.80	7.90	9.60	11.80	58 7.84	0.27	- - -	1.07	21 58 7.04	2.36	
	15			D.	31.40	34.00	36.00	38.10	40.40							
	16			E.	59.90	3.00	5.45	8.00	11.00							
	17			A.	2.00	4.60	7.21	10.25	12.85							
	18			B.	32.70	34.90	37.15	39.68	42.00							
	19	Neptune - - -	--	C.	1.40	3.80	6.00	7.80	10.00	27 5.85	0.26	- - -	1.03	22 27 5.08	- - -	
	20			D.	29.80	32.38	34.50	36.50	39.00							
	21			E.	58.80	1.80	4.40	7.00	10.00							
	22			A.	58.00	0.60	3.60	6.71	9.17							
	23			B.	29.11	31.16	33.70	36.40	38.00							
	24	ζ Pegasi - - - -	--	C.	58.00	0.00	2.20	4.15	6.30	34 2.11	0.27	- - -	1.02	22 34 1.36	2.53	
	25			D.	26.18	28.50	30.54	32.70	35.09							
	26			E.	55.00	58.10	0.50	3.10	6.00							
	27			A.	31.80	34.60	38.00	40.50	43.40							
	28			B.	5.50	7.81	10.60	13.40	15.60							
	29	α Andromedæ - - -	--	C.	37.77	40.20	42.50	44.60	47.10	0 42.54	0.28	- - -	0.93	0 0 41.89	— 3.09	
	30			D.	9.00	12.00	14.21	17.00	19.40							
	31			E.	41.50	45.00	47.70	50.50	53.80							
10	32			A.	42.24	44.90	47.82	51.16	53.91							
	33			B.	14.83	17.00	19.61	22.04	24.09							
	34	α Bootis - - - -	--	C.	45.00	47.20	49.17	51.37	53.60	8 49.32	0.28	- - -	0.45	14 8 49.15	+ 0.07	K.
	35			D.	14.56	17.12	19.10	21.56	24.00							
	36			E.	44.79	47.87	50.57	53.15	56.23							
	37			A.	15.00	17.88	21.05	24.37	27.20							
	38			B.	49.50	51.65	54.48	57.30	59.30							
	39	ϵ Bootis - - - -	--	C.	21.53	23.87	26.18	28.36	30.63	38 26.11	0.28	- - -	0.45	14 38 25.94	0.17	
	40			D.	52.69	55.40	57.74	0.08	2.72							
	41			E.	25.00	28.44	31.19	33.82	37.22							
	42			A.	6.81	16.10	26.72	38.00	47.48							
	43			B.	2.78	10.00	20.10	29.00	36.50							
	44	β Ursæ Minoris - -	--	C.	50.49	58.70	6.25	13.71	22.00	51 6.18	0.25	- - -	0.45	14 51 5.98	+ 5.50	
	45			D.	35.74	44.49	53.38	0.19	9.51							
	46			E.	24.44	36.11	45.30	55.00	5.78							
	47			A.	37.96	40.70	43.67	47.00	49.72							
	48			B.	11.69	13.82	16.49	19.20	21.32							
	49	Venus, 1st L. - -	--	C.	43.00	45.10	47.40	49.60	51.80	3 47.39	+ 0.26	+ 0.93	— 0.45	16 3 48.13	- -	
	50			D.	13.49	16.00	18.21	20.72	23.33							
	51			E.	44.90	48.22	50.89	53.74	56.90							

Date.	Clock.	Hourly rate.	VALUE OF *m.*	VALUE OF *n.*	VALUE OF *c.*
h.	s.	s.	s.	s.	s.
Oct. 9, 20.4	— 1.17	+ 0.066	+ 0.312	+ 0.026	— 0.038
10, 14.3	— 0.45	0.000			

ATE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0.	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.		s.	h. m. s.	s.	
850.	1			A.	42.85	46.00	49.87	53.60	56.62							
. 15	2			C.	27.14	30.47	33.58	36.60	39.75							
	3	η Ursæ Majoris . .	W.	D.	10.40	14.00	17.00	20.39	24.10	41 55.89	— 22.15	- - -	+ 2.25	13 41 35.99	+ 1.16	K.
	4			E.	54.60	59.18	3.20	7.00	11.40							
	5			A.	23.46	26.00	29.05	32.20	34.75							
	6			B.	55.80	57.80	0.30	2.92	5.00							
	7	η Bootis	--	C.	25.89	28.10	30.15	32.40	34.40	47 30.12	+ 0.28	- - -	2.25	13 47 32.65	— 0.01	
	8			D.	54.89	57.69	59.82	2.00	4.52							
	9			E.	25.42	28.61	31.20	33.71	36.90							
	10			A.	39.46	42.00	45.10	48.29	50.98							
	11			B.	11.90	14.04	16.60	19.13	21.26							
	12	α Bootis	--	C.	42.14	44.45	46.60	48.50	50.62	8 46.45	0.28	- - -	2.25	14 8 48.88	+ 0.08	
	13			D.	11.52	14.12	16.60	18.60	21.10							
	14			E.	41.81	45.07	47.59	50.07	53.52							
22	15			A.	16.38	18.76	21.90	24.73	27.22							
	16			B.	47.49	49.61	52.00	54.50	56.30							
	17	Sun, 1st L.	--	C.	16.53	18.58	20.50	22.58	24.77	46 20.60	+ 0.26					
	18			D.	44.50	47.00	49.30	51.40	54.00							
	19			E.	13.80	16.84	19.40	22.00	24.83			(65.93)	9.56	13 47 36.26	- - -	
	20			B.	59.30	1.29	3.66	6.27	8.40							
	21			C.	28.13	30.49	32.29	34.66	36.56							
	22	Sun, 2d L.	--	D.	56.56	58.92	1.11	3.23	5.67	48 47.13	— 14.41					
	23			E.	25.66	28.74	31.29	33.90	36.76							
	24			A.	32.23	34.73	37.79	40.90	43.60							
	25			B.	4.63	6.78	9.37	12.00	14.00							
	26	α Bootis	--	C.	34.90	37.06	39.15	41.29	43.60	8 39.22	+ 0.28	- - -	9.61	14 8 49.11	0.06	
	27			D.	4.26	6.95	9.10	11.36	13.90							
	28			E.	34.80	37.95	40.68	43.10	46.40							
	29			A.	36.67	39.57	42.62	46.00	48.65							
	30			B.	11.00	13.30	16.00	18.65	20.91							
	31	Venus, 1st L. . .	--	C	43.00	45.18	47.49	49.81	52.00	51 47.46	0.25	+ 1.12	9.92	16 51 58.75	- - -	
	32			D.	13.92	16.68	19.00	21.33	24.00							
	33			E.	46.00	49.31	52.20	55.00	58.30							
	34			A.	11.90	14.70	17.93	21.40	24.30							
	35			B.	47.00	49.24	52.00	54.80	57.00							
	36	ζ Cygni	--	C.	19.69	21.94	24.27	26.57	28.80	6 24.27	+ 0.28	- - -	10.40	21 6 34.95	— 1.86	
	37			D.	51.50	54.20	56.56	58.90	1.68							
	38			E.	24.19	27.77	30.47	33.30	35.70							
	39			C.	42.29	46.59	50.70	55.00	59.41							
	40	α Cephei	--	D.	41.00	46.15	50.64	54.90	0.00	15 51.51	— 60.42	- - -	10.43	21 15 1.52	2.09	
	41			E.	41.70	48.00	53.23	58.46	4.63							
	42			B.	58.23	0.20	2.56	5.00	7.19							
	43			C.	26.35	28.75	30.90	32.93	34.90							
	44	β Aquarii	--	D.	54.70	57.00	59.00	1.17	3.57	23 45.31	— 14.22	- - -	10.44	21 23 41.53	2.04	
	45			E.	23.36	26.26	28.70	31.20	34.19							
	46			A.	36.70	39.20	42.00	45.00	47.50							
	47			B.	7.59	9.49	12.00	14.38	16.32							
	48	ε Pegasi	--	C.	26.29	20.32	40.36	42.42	44.50	36 40.39	+ 0.27	- - -	10.46	21 36 51.12	— 2.09	
	49			D.	4.29	6.72	8.83	10.96	13.39							
	50			E.	33.15	36.20	38.63	41.22	44.17							

Date.	Clock	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Oct. 15, 14.0	+ 2.25	0.000	+ 0.312	+ 0.026	— 0.038
22, 20.7	+ 10.36	+ 0.114			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Oct 22	1			A.	3.40	5.80	8.70	11.80	14.19							
	2			B.	34.29	36.36	38.90	41.37	43.27							
	3	Neptune . . .	W.	C.	3.16	5.19	7.22	9.32	11.43	26 7.34	+ 0.26	- - -	+ 10.55	22 26 18.15	- - -	K.
	4			D.	31.36	33.80	36.00	38.00	40.50							
	5			E.	0.37	3.46	5.90	8.42	11.40							
	6			A.	39.70	42.55	45.76	49.17	52.10							
	7	Piscis Austral. (7909)	--	B.	14.89	17.37	20.00	23.00	25.20	33 44.37	8.39	- - -	10.56	22 34 3.32	+ 2.42	
	8			C.	47.90	50.16	52.49	54.81	57.08							
	9			E.	52.71	56.09	59.00	2.00	5.31							
	10			C.	8.00	10.39	12.70	15.00	17.46							
	11	α Piscis Australis . .	--	D.	40.20	42.90	45.29	47.69	50.50	49 45.83	— 32.85	- - -	10.59	22 49 23.57	2.49	
	12			E.	13.05	16.69	19.40	22.30	25.80							
	13			A.	4.29	6.65	9.70	12.80	15.30							
	14			B.	35.65	37.69	40.33	42.70	44.80							
	15	α Pegasi	--	C.	5.00	7.20	9.09	11.13	13.17	57 9.17	+ 0.27	- - -	10.63	22 57 20.07	— 2.54	
	16			D.	33.57	36.00	38.20	40.29	42.70							
	17			E.	2.90	6.10	8.60	11.18	14.20							
27	18			B.	6.76	9.27	12.39	15.51	18.10							
	19	12 Canum Venaticorum	--	C.	43.40	46.00	48.59	51.15	53.73	49 7.11	— 18.28	- - -	11.02	12 48 59.85	+ 0.31	
	20			D.	18.91	22.07	24.72	27.41	30.46							
	21			E.	55.57	59.64	2.79	5.89	9.70							
	22			A.	49.68	55.00	0.00	4.77	11.15							
	23			B.	18.29	24.45	31.83	38.30	45.50							
	24	Polaris, S. P. . .	--	C.	51.20	57.86	3.30	8.31	14.00	6 1.91	— 0.15	- - -	11.06	13 6 12.82	— 69.95	
	25			D.	20.41	26.50	32.20	38.00	44.70							
	26			E.	50.21	56.00	1.90	9.50	14.73							
	27			A.	2.90	5.52	8.40	11.40	13.82							
	28			B.	33.89	36.09	38.43	41.00	42.90							
	29	α Virginis	--	C.	3.00	5.00	7.00	9.05	11.00	17 6.97	+ 0.26	- - -	11.09	13 17 18.32	+ 0.51	
	30			D.	31.10	33.32	35.51	37.60	40.00							
	31			E.	0.00	3.00	5.50	8.80	10.90							
	32			A.	46.82	50.80	55.39	59.90	3.80							
	33			B.	34.52	37.50	41.40	45.10	48.13							
	34	η Ursæ Majoris . .	--	C.	18.49	21.69	25.00	28.00	31.31	41 24.97	+ 0.28	- - -	11.14	13 41 36.39	+ 1.10	
	35			D.	1.72	5.40	8.80	11.86	15.69							
	36			E.	46.00	50.51	54.60	58.61	3.12							
	37			B.	46.57	48.73	51.31	53.90	55.90							
	38	η Bootis	--	C.	16.67	18.80	20.86	23.00	25.20	47 36.11	— 14.97	- - -	11.15	13 47 32.29	— 0.07	
	39			D.	45.76	48.41	50.60	52.73	55.31							
	40			E.	15.90	19.12	21.76	24.30	27.40							
28	41			A.	57.90	0.80	3.94	7.35	10.00							
	42			B.	32.17	34.40	37.17	39.80	42.00							
	43	α Coronæ Borealis .	--	C.	4.24	6.40	8.82	10.84	13.20	28 8.70	+ 0.28	- - -	11.37	15 28 20.35	+ 0.17	
	44			D.	35.18	38.00	40.20	42.51	45.35							
	45			E.	7.24	10.67	13.58	16.30	19.30							
	46			A.	6.13	8.90	12.20	15.52	18.39							
	47			B.	40.70	43.00	45.74	48.50	50.69							
	48	Venus, 1st L. . .	--	C.	12.86	15.14	17.30	19.60	22.05	12 17.42	+ 0.25	+ 1.23	11.59	17 12 30.49	- - -	
	49			D.	44.20	46.85	49.29	51.67	54.29							
	50			E.	16.28	19.82	22.41	25.40	28.70							
	51			B.	38.60	40.82	43.20	45.80	47.76							
	52	β Leonis	--	C.	8.12	10.13	12.36	14.34	16.47	41 27.24	— 14.66	- - -	+ 12.20	11 41 24.78	— 0.55	
	53			D.	36.80	39.30	41.49	43.67	46.10							
	54			E.	6.30	9.41	12.00	14.57	17.69							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Oct. 22, 20.7	+ 10.36	+ 0.114	+ 0.312	+ 0.026	— 0.038
27, 13.8	11.15	.130			
28, 13.2	+ 12.40	+ .134			

ATE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0.	Observer.
850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
t. 28	1			A.	53.75	57.80	2.71	7.91	12.00							
	2			B.	46.17	49.48	53.70	58.07	1.30							
	3	γ Ursæ Majoris	W.	C.	34.90	38.63	42.12	45.58	49.05	45 42.03	+ 0.28	- - -	+ 12.20	11 45 54.51	+ 0.48	K.
	4			D.	22.88	26.87	30.48	33.86	38.13							
	5			E.	11.80	16.80	21.15	25.40	30.30							
	6			A.	45.90	49.67	54.00	58.69	2.40							
	7			B.	33.35	36.41	40.13	43.81	46.93							
	8	η Ursæ Majoris	--	C.	17.61	20.59	23.83	27.00	30.12	41 23.80	0.28	- - -	12.47	13 41 36.55	+ 1.10	
	9			D.	0.53	4.40	7.44	10.79	14.41							
	10			E.	44.80	49.69	53.52	57.19	1.85							
	11			A.	13.20	15.80	18.76	22.00	24.54							
	12			B.	45.41	47.50	50.09	52.73	54.87							
	13	η Bootis	--	C.	15.57	17.80	19.89	22.00	24.00	47 19.80	0.28	- - -	12.48	13 47 32.56	— 0.08	
	14			D.	44.80	47.26	49.41	51.75	54.30							
	15			E.	14.90	18.00	20.79	23.29	26.42							
	16			A.	29.55	32.13	35.08	38.12	40.82							
	17			B.	1.89	4.00	6.62	9.20	11.20							
	18	α Bootis	--	C.	32.19	34.23	36.51	38.59	40.79	8 36.41	0.28	- - -	12.52	14 8 49.21	+ 0.04	
	19			D.	1.54	4.08	6.19	8.47	11 00							
	20			E.	31.79	35.00	37.60	40.20	43.45							
29	21			A.	5.00	7.54	10.37	13.24	16.00							
	22			B.	36.35	38.30	40.82	43.24	45.45							
	23	Sun, 1st L.	--	C.	5.81	7.79	9.69	11.69	14.00	13 9.78						
	24			D.	34.29	36.69	38.70	40.73	43.25							
	25			E.	3.53	6.49	9.00	11.66	14.70							
	26			A.	18.00	20.64	23.52	26.50	29.18		0.26	(66.56)	12.62	14 14 29.22	- - -	
	27			B.	49.49	51.49	54.00	56.41	58.62							
	28	Sun, 2d L.	--	C.	18.70	20.91	23.00	25.00	27.14	15 22.91						
	29			D.	47.23	49.70	51.71	54.00	56.42							
	30			E.	16.60	19.70	22.30	24.80	27.80							
	31			A.	28.37	31.08	34.27	37.59	40.30							
	32			B.	2.79	4.92	7.79	10.57	12.70							
	33	Venus, 1st L.	--	C.	34.90	37.29	39.50	41.79	44.00	15 39.50	0.25	+ 1.25	12.62	17 15 53.62	- - -	
	34			D.	6.00	8.86	11.37	13.60	16.30							
	35			E.	38.50	41.87	44.81	47.50	50.92							
31	36			A.	8.65	11.40	14.66	18.19	21.00							
	37			B.	43.68	46.00	48.80	51.60	53.80							
	38	ζ Cygni	--	C.	16.30	18.70	21.00	23.39	25.65	6 21.02	0.28	- - -	13.51	21 6 34.81	— 1.69	B.
	39			D.	48.12	51.00	53.39	57.70	58.45							
	40			E.	21.00	24.30	27.20	30.00	33.40							
	41			A.	27.00	34.50	42.50	51.00	58.28							
	42			B.	55.80	1.50	8.85	16.00	21.20							
	43	β Cephei	--	C.	18.90	24.70	30.00	36.00	42.11	26 30.31	0.27	- - -	13.51	21 26 44.09	1.97	
	44			D.	39.00	46.15	51.65	58.20	4.88							
	45			E.	2.00	10.60	18.00	25.00	33.80							
	46	ε Pegasi	--	C.	33.29	35.30	37.30	39.30	41.40	36 37.32	0.27	- - -	13.51	21 36 51.10	1.95	
	47			B.	20.49	22.38	25.00	27.30	29.30							
	48	α Aquarii	--	C.	49.00	51.00	52.89	54.90	57.00	57 52.96	0.27	- - -	13.51	21 58 6.76	— 2.08	
	49			D.	16.50	19.00	21.00	23.19	25.43							
	50			A.	38.45	40.80	43.80	46.89	49.46							
	51			B.	9.35	11.59	14.00	16.45	18.55							
	52	Neptune	--	C	38.40	40.40	42.49	44.40	46.65	25 42.47	+ 0.26	- - -	+ 13.51	22 25 56.24	- - -	
	53			D.	6.49	9.00	11.00	13.00	15.40							
	54			E.	35.30	38.60	41.10	43.50	46.70							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Oct. 28, 13.2	+ 12.40	+ 0.134	+ 0.312	+ 0.026	— 0.038
29, 0.0	12.62				
31, 22.4	+ 13.51	.000			

DATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Oct. 31	1		W.	A.	43.60	46.00	48.90	51.80	54.40							
	2			B.	14.40	16.51	18.85	21.63	23.30							
	3	ζ Pegasi . . .	--	C.	43.30	45.43	47.40	49.38	51.50	33 47.40	+ 0.27	- - -	+ 13.51	22 34 1.18	— 2.29	B.
	4			D.	11.40	13.79	15.80	18.00	20.42							
	5			E.	40.30	43.31	45.83	48.40	51.30							
	6			A.	56.79	59.50	2.80	6.20	9.10							
	7			B.	32.00	34.20	37.19	40.00	42.22							
	8	α Piscis Australis .	--	C.	5.00	7.30	9.65	12.00	14.20	49 9.61	0.25	- - -	13.51	22 49 23.37	2.37	
	9			D.	37.00	39.65	42.00	44.50	47.40							
	10			E.	10.00	13.45	16.23	19.29	22.65							
	11			A.	1.15	3.63	6.47	9.60	12.20							
	12			B	32.48	34.69	37.00	39.69	41.80							
	13	α Pegasi	--	C.	2.00	4.10	6.25	8.14	10.34	56 51.24	15.13	- - -	13.51	22 57 19.88	2.44	
	14			D.	30.49	33.00	35.00	37.15	39.60							
	15	Victoria	--	C.	32.00	34.20	36.00	38.00	40.15	23 36.07	0.27	- - -	13.51	23 23 49.85	- - -	
	16	Flora	--	C.	53.00	55.00	57.00	59.00	1.17	59 57.03	0.26	- - -	13.51	0 0 10.80	- - -	
	17			A.	15.00	17.40	20.38	23.30	26.10							
	18			B.	46.10	48.55	51.00	53.37	55.60							
	19	γ Pegasi	--	C.	15.79	18.00	20.00	22.00	24.20	5 19.93	0.27	- - -	13.51	0 5 33.71	— 2.79	
	20			D.	44.18	46.81	49.00	51.10	53.60							
	21			E.	13.60	16.71	19.40	22.00	25.00							
	22			A.	55.83	58.39	1.42	4.47	7.11							
	23			B.	28.09	30.18	32.81	35.57	37.55							
	24	α Bootis	--	C.	58.20	0.48	2.70	4.89	6.90	8 2.61	0.28	- - -	46.13	14 8 49.02	+ 0.01	K
	25			D.	27.69	30.19	32.48	34.60	37.15							
	26			E.	57.90	1.12	3.79	6.32	9.45							
	27			A.	13.26	15.35	18.14	21.83	24.22							
	28			B.	44.70	46.87	49.47	51.91	54.00							
Nov. 1	29	Sun, 1st L. . . .	--	C.	14.51	16.47	18.60	20.79	22.70	24 18.44	+ 0.26					
	30			D.	43.00	45.43	47.60	49.87	52.12							
	31			E.	12.46	15.59	18.31	20.10	23.64			(66.97)	46.11	14 26 11.78	- - -	
	32			B.	58.73	0.92	3.29	5.71	7.90							
	33			C.	28.17	30.18	32.41	34.50	36.46							
	34	Sun, 2d L. . . .	--	D.	56.91	59.40	1.40	3.67	6.06	26 47.25	— 14.61					
	35			E.	26.25	29.22	31.95	34.37	37.63							
	36			A.	41.27	44.09	47.40	50.79	53.51							
	37			B.	15.93	18.07	20.81	23.71	25.81							
	38	Venus, 1st L. . .	--	C.	48.10	50.47	52.71	54.92	57.27	24 52.67	+ 0.25	+ 1.31	45.99	17 25 40.22	- - -	
	39			D.	19.39	22.15	24.50	26.85	29.62							
	40			E.	51.69	55.09	57.90	0.63	4.07							
	41			C.	8.51	10.58	12.61	14.62	16.70							
	42	α Ophiuchi . . .	--	D.	36.80	39.21	41.47	43.61	46.00	27 41.87	— 28.99	- - -	45.99	17 27 58.87	— 0.50	
	43			E.	5.90	9.10	11.70	14.14	17.09							
	44			A.	1.19	3.63	6.54	9.57	12.00							
	45			B.	32.00	34.11	36.56	39.01	41.00							
	46	ε Pegasi	--	C.	0.84	2.93	4.87	7.00	9.00	36 4.97	+ 0.27	- - -	45.83	21 36 51.07	1.94	
	47			D.	29.80	31.20	33.46	35.56	37.92							
	48			E.	57.64	0.68	3.26	5.70	8.76							
	49			A.	17.79	20.16	22.93	26.00	28.47							
	50			B.	48.11	50.19	52.53	55.00	57.00							
	51	α Aquarii	--	C.	16.66	18.61	20.61	22.64	24.73	57 20.65	+ 0.27	- - -	+ 45.81	21 58 6.73	— 2.06	
	52			D.	44.24	46.60	48.72	50.83	53.27							
	53			E.	12.78	15.80	18.36	20.72	23.61							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s	s	s.
Oct. 31, 22.4	+ 13.51	0.000	+ 0.312	+ 0.026	— 0.038
Nov. 1, 20.5	+ 45.87	— 0.040			

Oct. 31, 14*h*. Stopped the clock.

ATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s	h. m. s.	s.	
850.																
v. 1	1			A.	52.43	55.21	58.48	1.89	4.76							
	2			B.	27.10	29.43	32.20	35.00	37.12							
	3	λ Piscis Australis .	W.	C.	59.50	1.80	4 06	6.43	8.72	5 4.08	+ 0.25	- - -	+ 45.81	22 5 50.14	— 2.16	K.
	4			D.	30.83	33.69	36.05	38.39	41.07							
	5			E.	3.29	6.81	9.67	12.39	15.69							
	6			B.	35.39	37.40	39.90	42.40	44.40							
	7	Neptune	--	C.	4.16	6.30	8.33	10.40	12.40	25 22.95	— 14.37	- - -	45.79	22 25 54.37	- - -	
	8			D.	32.33	34.85	36.93	39.00	41.40							
	9			E.	0.32	4.39	6.92	9.48	12.33							
	10			A.	11.17	13.70	16.47	19.60	22.10							
	11			B.	42.00	44.19	46.69	49.19	51.07							
	12	ζ Pegasi	--	C.	10.90	13.00	15.07	17.11	19.13	33 15.08	+ 0.27	- - -	45.78	22 34 1.13	2.28	
	13			D.	39.00	41.43	43.58	45.70	48.12							
	14			E.	7.76	11.06	13.61	16.10	19.05							
	15			A.	24.29	27.21	30.50	34.00	36.76							
	16			B.	59.61	1.90	4.89	7.79	9.90							
	17	α Piscis Australis .	--	C	32.47	35.00	37.39	39.71	42.00	48 37.31	0.25	- - -	45.78	22 49 23.34	2.36	
	18			D.	4.70	7.39	9.80	12.39	15.09							
	19			E	37.61	41.20	44.00	46.91	50.32							
	20			A.	27.51	30.00	32.89	35.83	38.31							
	21			B.	58.07	0.10	2.50	5.13	7.00							
	22	ι Piscium	--	C.	26.70	28.66	30.64	32.70	34.79	31 30.69	+ 0.27	- - -	45.75	23 32 16.71	2.56	
	23			D.	54.39	56.77	58.78	1.00	3.24							
	24			E.	22.95	26.00	28.50	31.00	33.70							
	25			B.	57.94	0.10	2.57	5.10	7.00							
	26	Ceres	--	C.	27.34	29.49	31.49	33.53	35.67	4 46.38	— 14.61	- - -	45.73	0 5 17.50	- - -	
	27			D.	55.90	58.60	0.54	2.68	5.19							
	28			E.	25.32	28.40	30.92	33.60	36.40							
2	29			A.	42.00	34.00	9.00	48.50	46.00							
	30			B.	22.50	55.50	17.50	36.00	9.00							
	31	Polaris, S. P. . .	--	C.	45.00	3.00	23.50	36.50	56.00	5 20.64	— 0.15	- - -	45.47	13 6 5.96	68.58	B.
	32			D.	34.00	48.50	20.00	57.00	15.00							
	33			E	1.00	37.00	34.00	24.50	1.00							
	34			A.	23.75	26.39	29.20	32.50	35.00							
	35			B.	55.52	57.55	59.70	2.40	4.60							
	36	Sun, 2d L.	--	C.	25.00	27.05	29.00	31.00	33.00	30 29.03	+ 0.26	— 67.00	45.42	14 30 7.71	- - -	
	37			D.	53.40	56.00	58.22	0.30	2.80							
	38			E	23.20	26.20	28.55	31.17	34.38							
	39			A.	48.80	51.75	54.80	58.00	0.80							
	40			B.	23.30	25.53	28.41	31.15	33.38							
	41	Venus, 1st L. . .	--	C.	55.48	57.80	59.90	2.38	4.68	28 0.11	0.25	+ 1.33	45.29	17 28 46.98	- - -	
	42	*		D.	26.89	29.60	32.00	34.31	37.19							
	43			E.	59.00	2.60	5.30	8.12	11.62							
	44			A.	36.90	39.80	42.90	46.59	49.30							
	45			B.	12.12	14.49	17.16	20.00	22.21							
	46	ζ Cygni	--	C.	44.68	47.00	49.34	51.60	54.00	5 49.37	0.28	- - -	45.14	21 6 34.79	1.65	
	47			D.	16.69	19.40	21.70	24.15	26.80							
	48			E.	49.18	52.59	55.59	58.45	1.68							
	49			A.	55.50	2.70	11.15	19.90	26.88							
	50			B.	24.60	30.15	37.30	44.14	50.12							
	51	β Cephei	--	C.	47.00	52.80	59.20	4.80	10.70	25 58.82	+ 0.27	- - -	+ 45.12	21 26 44.21	— 1.85	
	52			D.	7.20	14.14	20.35	26.79	33.70							
	53			E.	30.00	39.00	46.15	53.81	2.38							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Nov. 1, 20.5	+ 45.87	— 0.040	+ 0.312	+ 0.026	— 0.038
2, 22.0	+ 45.10	— .042			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Nov. 2	1			A.	1.79	4.28	7.13	10.10	12.69							
	2			B.	32.79	34.68	37.20	39.59	41.69							
	3	ε Pegasi	W.	C.	1.41	3.59	5.77	7.53	9.60	36 5.57	+ 0.27	. . .	+ 45.12	21 36 50.96	— 1.92	B.
	4			D.	29.55	32.00	34.00	36.00	38.45							
	5			E.	58.20	1.50	3.91	6.39	9.40							
	6			A.	3.38	5.80	8.50	11.70	14.40							
	7			B.	34.00	36.00	38.78	41.30	43.30							
	8	Neptune	--	C.	3.19	5.42	7.49	9.40	11.48	25 7.33	0.26	. . .	45.08	22 25 52.67	. . .	
	9			D.	31.40	33.79	35.84	38.00	40.63							
	10			E.	0.40	3.30	5.80	8.48	11.43							
	11			B.	42.62	45.00	47.38	49.80	52.00							
	12	ζ Pegasi	--	C.	11.75	14.00	15.90	17.90	20.00	33 15.83	0.27	. . .	45.08	22 34 1.18	2.26	
	13			D.	39.67	42.15	44.19	46.33	48.80							
	14			A.	29.70	32.19	35.12	38.00	40.80							
	15			B.	0.65	3.00	5.68	8.30	10.32							
	16	α Pegasi	--	C.	30.45	32.50	34.60	36.79	38.80	56 34.55	0.27	. . .	45.06	22 57 19.88	2.42	
	17			D.	58.90	1.28	3.40	5.61	8.00							
	18			E.	38.35	41.32	44.00	46.51	49.52							
	19			A.	58.19	0.90	3.80	7.00	9.69							
	20			B.	30.50	32.72	35.29	37.85	40.00							
3	21	α Bootis	--	C.	0.70	2.88	5.15	7.29	9.48	8 5.08	0.27	. . .	43.69	14 8 49.04	— 0.02	
	22			D.	30.00	37.71	35.00	37.20	39.71							
	23			E.	0.40	3.46	6.30	8.80	12.10							
	24			A.	4.68	7.50	10.00	13.30	16.00							
	25			B.	38.52	32.00	41.00	43.80	45.90							
4	26	Sun, 1st L.	--	C.	6.10	8.12	10.31	12.35	14.50	46 10.27						
	27			D.	35.00	37.38	39.70	41.80	44.20							
	28			E.	4.40	7.60	10.30	12.35	14.50		0.26	(67.30)	43.67	14 38 1.50	. . .	
	29			B.	51.00	53.15	55.65	58.30	0.20							
	30	Sun, 2d L.	--	C.	20.55	22.62	25.00	27.00	29.14	48 24.86						
	31			D.	49.30	52.00	54.00	56.28	58.75							
	32			A.	25.40	28.00	31.29	34.80	37.50							
	33			B.	59.50	1.70	4.61	7.33	9.60							
	34	α Coronæ Borealis	--	C.	31.66	33.75	36.20	38.57	40.78	27 36.14	0.28	. . .	43.64	15 28 20.06	+ 0.17	
	35			D.	2.59	5.40	7.90	10.08	12.55							
	36			E.	34.60	38.12	41.00	43.80	46.79							
	37			A.	40.39	43.49	45.90	48.79	51.90							
	38			B.	11.70	14.21	16.20	18.51	21.00							
	39	α Ophiuchi	--	C.	40.80	42.90	44.90	47.00	49.11	26 45.04	0.27	. . .	43.58	17 27 58.89	— 0.47	
	40			D.	9.30	11.30	13.90	16.20	18.40							
	41			E.	38.50	41.12	44.00	47.00	49.45							
	42			A.	49.61	52.35	55.76	59.00	2.00							
	43			B.	24.00	26.38	29.18	32.00	34.29							
	44	Venus, 1st L.	--	C.	56.20	58.52	1.00	3.29	5.79	34 0.99	+ 0.25	+ 1.38	43.57	17 34 46.19	. . .	
	45			D.	27.72	30.50	32.80	35.00	37.90							
	46			E.	0.20	3.40	6.49	9.00	12.32							
	47			B.	50.48	52.50	55.00	57.42	59.40							
	48			C.	18.90	21.00	23.00	25.10	27.20							
	49	α Aquarii	--	D.	46.54	49.00	51.00	53.18	55.49	57 37.38	— 14.13	. . .	+ 43.43	21 58 6.68	— 2.02	
	50			E.	15.00	18.00	20.48	23.00	25.80							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Nov. 2, 22.0	+ 45.10	— 0.042	+ 0.312	+ 0.026	— 0.038
4, 19.6	+ 43.51	— 0.033			

ATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
850.	1			A.	2.10	4.45	7.15	10.35	12.85							
ov. 4	2			B.	32.79	34.71	37.40	40.00	41.85							
	3	Neptune . . .	W.	C.	1.62	3.90	5.80	8.00	10.00	25 5.90	+ 0.26	. . .	+ 43.42	22 25 49.58	. . .	B.
	4			D.	29.80	32.40	34.70	36.70	39.00							
	5			E.	58.80	2.00	4.35	6.90	9.80							
	6			A.	13.41	15.90	18.79	21.85	24.48							
	7			B.	44.39	46.42	49.00	51.39	53.39							
	8	ζ Pegasi	--	C.	13.35	15.41	17.40	19.42	21.59	33 17.41	0.27	. . .	43.41	22 34 1.09	— 2.24	
	9			D.	41.40	43.80	46.00	48.18	50.50							
	10			E.	10.30	13.39	15.80	18.44	21.29							
	11			B.	1.80	4.19	6.90	10.00	12.00							
	12	α Piscis Australis .	--	C.	34.85	37.20	39.60	42.00	44.12	48 39.58	0.25	. . .	43.41	22 49 23.24	2.31	
	13			D.	7.00	9.78	12.20	14.60	17.30							
	14			A.	31.25	33.80	36.58	39.80	42.40							
	15			B.	2.70	4.80	7.20	9.60	11.90							
	16	α Pegasi	--	C.	32.00	34.11	36.20	38.31	40.45	56 36.20	0.27	. . .	43.40	22 57 19.87	2.39	
	17			D.	0.40	3.00	5.16	7.32	9.70							
	18			E.	30.00	33.00	35.65	38.39	41.30							
5	19			A.	53.26	55.78	58.71	1.78	4.15							
	20			B.	24.40	26.30	28.91	31.43	33.58							
	21	Weisse XXI, 662 .	--	C.	53.23	55.36	57.40	59.26	1.37	26 57.36	0.26	. . .	42.34	21 27 39.96	1.85	K.
	22			D.	21.29	23.80	25.90	28.00	30.51							
	23			E.	50.19	53.46	56.00	58.51	1.41							
	24			A.	4.40	6.90	9.80	12.65	15.40							
	25			B.	35.49	37.29	39.83	42.39	44.40							
	26	ε Pegasi	--	C.	4.18	6.23	8.33	10.33	12.40	36 8.27	0.27	. . .	42.34	21 36 50.88	1.88	
	27			D.	32.17	34.60	36.75	38.86	41.29							
	28			E.	1.10	4.00	6.49	9.26	12.13							
	29			A.	21.27	23.58	26.47	29.41	31.80							
	30			B.	51.60	53.60	56.11	58.40	0.47							
	31	α Aquarii	--	D.	47.50	50.00	52.09	54.24	56.61	57 24.07	0.27	. . .	42.32	21 58 6.66	2.01	
	32			E.	16.00	19.28	21.67	24.20	27.00							
	33			A.	24.87	27.70	31.14	34.69	37.70							
	34			B.	1.17	3.52	6.40	9.39	11.80							
	35	Piscis Aust., (7714)	--	C.	35.19	37.64	40.00	42.48	44.87	0 40.05	+ 0.24	. . .	42.32	22 1 22.61	2.11	
	36			D.	8.24	11.21	13.50	16.19	19.00							
	37			E.	42.39	45.94	48.90	51.86	55.29							
	38			B.	30.53	32.72	35.50	38.19	40.58							
	39			C.	2.76	5.11	7.59	9.71	12.00							
	40	Piscis Australis .	--	D.	34.30	37.00	39.47	41.64	44.47	5 23.61	— 15.97	. . .	42.32	22 5 49.96	2.10	
	41			E.	6.63	10.00	11.91	14.17	18.00							
	42			A.	1.72	4.28	7.00	10.13	12.05							
	43			C.	1.69	3.69	5.67	7.66	9.90							
	44	Neptune . . .	--	D.	29.61	32.23	34.26	36.46	38.80	25 12.80	— 6.86	. . .	42.30	22 25 48.24	. . .	
	45			E.	58.63	1.64	4.24	6.63	9.64							
	46			A.	14.73	17.24	19.92	23.00	25.60							
	47			B.	45.57	47.64	50.00	52.46	54.60							
	48	ζ Pegasi	--	C.	14.47	16.53	18.57	20.70	22.56	33 18.56	+ 0.27	. . .	+ 42.29	22 34 1.12	— 2.22	
	49			D.	42.58	45.06	47.10	49.18	51.70							
	50			E.	11.40	14.47	16.89	19.56	22.48							
	51															

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Nov. 4, 19.6	+ 43.51	— 0.033	+ 0.312	+ 0.026	— 0.038
5, 22.5	+ 42.30	— 0.038			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h m. s.	s.	
1850. Nov. 13	1			A.	6.44	9.00	11.90	15.00	17.57							
	2			B.	38.00	40.05	42.59	45.18	47.00							
	3	α Herculis	W.	C.	7.29	9.37	11.48	13.51	15.70	7 11.43	+ 0.27	- - -	+ 37.23	17 7 48.93	— 0.35	K.
	4			D.	35.79	38.29	40.40	42.51	45.10							
	5			E.	5.20	8.40	11.00	13.45	16.50							
	6			A.	1.36	4.30	7.43	10.79	13.50							
	7			B.	35.90	38.15	40.80	43.70	45.71							
	8	Venus, 1st L.	--	C.	8.17	10.40	12.67	14.87	17.19	56 12.61	0.25	+ 1.59	37.19	17 56 51.64	- - -	
	9			D.	39.39	42.00	44.32	46.70	49.44							
	10			E.	11.40	14.89	17.80	20.50	23.91							
	11			A.	36.20	39.69	44.00	48.69	52.10							
	12			B.	21.44	24.49	28.19	31.82	34.50							
	13	α Gruis	--	C.	3.71	6.94	9.73	12.43	15.76	58 9.70	0.21	- - -	36.98	21 58 46.89	2.02	
	14			D.	44.76	48.51	51.40	54.31	58.19							
	15			E.	27.16	31.40	35.10	38.89	43.10							
	16			A.	0.70	3.16	6.07	9.00	11.60							
	17			B.	31.76	33.82	36.14	38.61	40.60							
	18	Neptune	--	C.	0.61	2.73	4.69	6.70	8.72	25 4.71	0.26	- - -	36.96	22 25 41.93	- - -	
	19			D.	28.77	31.20	33.30	35.44	37.84							
	20			E.	57.71	0.79	3.26	5.79	8.70							
	21			A.	20.00	22.30	25.09	28.31	30.82							
	22			B.	50.79	52.86	55.33	57.78	59.73							
	23	ζ Pegasi	--	C.	19.71	24.79	23.87	25.80	27.90	33 23.78	0.27	- - -	36.95	22 34 1.00	2.11	
	24			D.	47.84	50.20	52.39	54.39	56.77							
	25			E.	16.64	19.70	22.13	24.89	27.71							
	26			A.	8.42	11.00	13.74	16.82	19.31							
	27			B.	39.20	41.19	43.70	46.15	48.19							
	28	λ Aquarii	--	C.	8.13	9.87	12.00	14.00	16.07	44 12.03	0.27	- - -	36.94	22 44 49.24	2.14	
	29			D.	35.82	38.20	40.33	42.53	45.05							
	30			E.	4.64	7.69	10.21	12.71	15.70							
	31			A.	33.15	35.74	39.10	42.40	45.52							
	32			B.	8.39	10.52	13.29	16.18	18.61							
	33	α Piscis Australis	--	C.	41.19	43.50	45.80	48.10	50.40	48 29.19	16.93	- - -	36.94	22 49 23.06	2.18	
	34			D.	13.13	16.00	18.31	20.90	23.52							
	35			A.	37.61	40.00	42.90	46.00	48.57							
	36			B.	9.00	10.92	13.40	16.04	18.06							
	37	α Pegasi	--	C.	38.14	40.24	42.57	44.49	46.54	56 42.44	0.27	- - -	36.93	22 57 19.64	2.28	
	38			D.	6.81	9.40	11.60	13.46	16.06							
	39			E.	36.31	39.19	41.89	44.44	47.39							
	40			A.	54.40	57.00	59.89	3.00	5.64							
	41			B.	25.92	28.07	30.56	33.21	35.10							
	42	Moon, 1st L.	--	C.	55.48	57.59	59.50	1.55	3.80	2 59.59	0.26	+ 62.39	36.92	23 4 39.16	- - -	
	43			D.	24.00	26.59	28.63	30.69	33.20							
	44			E.	53.53	56.61	59.20	1.91	4.82							
	45			A.	54.81	57.10	0.00	2.91	5.50							
	46			B.	25.43	27.40	30.00	32.30	34.30							
	47	φ Aquarii	--	C.	54.10	56.09	58.05	0.13	2.07	5 58.09	+ 0.26	- - -	+ 36.92	23 6 35.27	— 2.25	
	48			D.	21.77	24.33	26.40	28.56	30.87							
	49			E.	50.48	53.51	56.12	58.51	1.40							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h. Nov. 13, 20.8	s. + 37.04	s. — 0.052	s. + 0.312	s. + 0.026	s. — 0.038

ATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
350.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
v. 13	1			A.	30.52	32.89	35.64	38.80	41.27							
	2			B.	1.45	3.49	6.00	8.30	10.19							
	3	ψ^3 Aquarii	W.	C.	30.28	32.28	34.30	36.31	38.40	10 34.33	+ 0.26	. . .	+ 36.92	23 11 11.51	— 2.27	K.
	4			D.	58.34	0.71	2.77	5.00	7.35							
	5			E.	27.20	30.20	32.80	35.31	38.40							
	6			A.	31.62	34.57	37.10	39.88	42.51							
	7			B.	2.20	4.26	6.80	9.39	11.30							
	8	Weisse XXIII, 602	--	C.	30.89	32.91	35.00	37.00	39.00	28 34.94	0.27	. . .	36.90	23 29 12.11	2.42	
	9			D.	58.67	0.83	3.18	5.20	7.39							
	10			E.	27.39	30.21	32.81	35.25	38.15							
	11			A.	32.39	34.92	38.10	40.87	43.39							
	12			B.	3.44	5.60	8.10	10.43	12.62							
	13	Flora	--	C.	32.23	34.60	36.52	38.50	40.67	59 36.53	0.27	. . .	36.87	0 0 13.67	. . .	
	14			D.	0.43	2.91	5.26	7.30	9.42							
	15			E.	29.23	32.62	35.20	37.79	40.81							
	16			A.	51.47	54.00	56.90	59.90	2.32							
	17			B.	22.81	25.00	27.40	30.00	31.83							
	18	γ Pegasi	--	C.	52.30	54.29	56.19	58.39	0.52	4 56.36	0.27	. . .	36.87	0 5 32.50	2.69	
	19			D.	20.63	23.16	25.38	27.59	30.00							
	20			E.	50.17	53.23	55.78	58.30	1.36							
	21			A.	4.57	7.00	10.20	13.42	16.10							
	22			B.	37.00	39.18	41.80	44.33	46.46							
	23	α Bootis	--	C.	7.15	9.29	11.55	13.78	16.00	8 11.53	0.28	. . .	37.52	14 8 49.33	— 0.14	B.
	24			D.	36.54	39.10	41.39	43.55	46.16							
	25			E.	6.90	10.05	12.83	15.41	18.58							
	26			A.	37.00	39.70	43.00	46.40	49.18							
	27			B.	11.40	13.60	16.48	19.11	21.50							
	28	ϵ Bootis	--	C.	43.63	45.82	48.18	50.15	52.62	37 48.07	0.28	. . .	37.52	14 38 25.87	+ 0.09	
	29			D.	14.54	17.52	19.82	22.17	24.90							
	30			E.	46.80	50.35	53.00	55.80	59.09							
	31			A.	31.00	33.56	36.40	39.70	42.30							
	32			B.	2.80	4.80	7.47	10.00	12.00							
	33	Mercury, centre .	--	C.	32.25	34.31	36.60	38.55	40.58	46 36.52	0.26	. . .	37.52	14 47 14.32	. . .	
	34			D.	1.00	3.69	5.75	8.12	10.51							
	35			E.	30.70	33.80	36.60	39.00	42.14							
14	36			A.	28.60	31.20	34.30	37.72	40.30							
	37			B.	1.00	2.80	5.60	8.40	10.30							
	38	Sun, 1st L.	--	C.	31.00	33.16	35.25	37.40	39.30	16 35.17						
	39			D.	0.00	2.57	4.78	7.00	9.32							
	40			E.	30.10	33.12	35.90	38.40	41.90		0.26	(68.52)	37.52	15 18 21.47	. . .	
	41			B.	17.80	19.61	22.28	25.38	27.32							
	42	Sun, 2d L.	--	C.	48.00	50.00	52.18	54.49	56.43	18 52.20						
	43			D.	16.90	19.67	21.90	24.20	26.80							
	44			B.	47.70	49.70	52.00	54.70	56.70							
	45	α Ophiuchi . . .	--	C.	16.90	18.79	21.00	23.05	25.15	27 20.98	0.27	. . .	37.52	17 27 58.77	— 0.40	
	46			D.	45.00	47.52	49.50	52.50	54.18							
	47			A.	53.00	56.00	59.30	2.49	5.40							
	48			B.	27.51	29.88	32.75	35.58	37.30							
	49	Venus, 1st L. . .	--	C.	59.70	2.00	4.28	6.60	8.90	58 4.31	+ 0.25	+ 1.62	+ 37.52	17 58 43.70	. . .	
	50			D.	30.70	33.60	36.00	38.14	41.30							
	51			E.	3.18	6.50	9.52	12.50	15.52							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Nov. 13, 20.8	+ 37.04	— 0.052	+ 0.312	+ 0.026	— 0.038
14, 19.7	+ 37.52	0.000			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
1850. Nov. 14	1			A.	37.00	39.60	42.47	45.60	48.26							
	2			B.	8.40	10.44	13.00	15.38	17.80							
	3	α Pegasi	W.	C.	37.72	39.86	42.10	44.00	46.11	56 41.97	+ 0.27	- - -	+ 37.52	22 57 19.76	— 2.27	B.
	4			D.	6.18	8.90	11.00	13.00	15.50							
	5			E.	35.71	38.80	41.32	44.00	47.00							
	6			A.	54.21	56.70	59.60	2.49	5.00							
	7			B.	24.90	26.80	29.29	31.70	33.70							
	8	φ Aquarii	--	C.	53.40	55.60	57.61	59.80	1.79	6 57.55	0.26	. . .	37.52	23 6 35.33	2.24	
	9			D.	21.35	23.62	25.70	27.90	30.37							
	10			E.	49.80	53.20	55.52	58.10	0.70							
	11			A.	29.90	32.30	35.14	38.40	41.00							
	12			B.	0.70	2.70	5.50	7.60	9.61							
	13	ψ^3 Aquarii	--	C.	29.75	31.86	33.67	35.78	38.00	10 33.79	0.26	. . .	37.52	23 11 11.57	2.26	
	14			D.	57.60	0.15	2.20	4.59	6.82							
	15			E.	26.70	29.70	32.20	34.80	38.00							
	16			A.	40.35	43.00	46.00	48.90	51.80							
	17			B.	11.50	13.50	16.00	18.46	20.68							
	18	Moon, 1st L. . .	--	C.	40.52	42.78	44.79	47.00	48.71	50 44.90	0.26	+ 62.44	37.52	23 52 25.12	. . .	
	19			D.	9.00	11.60	13.58	16.00	18.50							
	20			E.	38.30	41.28	44.00	46.60	49.58							
	21			A.	1.00	3.40	6.05	9.10	11.70							
	22			B.	31.28	33.63	36.00	38.30	40.35							
	23	Piscium, (8368) .	--	C.	0.00	2.20	4.10	6.12	8.20	56 4.17	0.26	. . .	37.52	23 56 41.95	2.48	
	24			D.	27.85	30.38	32.38	34.40	36.80							
	25			E.	56 24	0.30	2.10	4.70	7.60							
	26			A.	51.00	53.30	56.17	59.00	2.00							
	27			B.	22.39	24.29	26.60	29.38	31.52							
	28	γ Pegasi	--	C.	51.70	53.80	56.00	58.00	0.00	4 55.79	0.27	. . .	37.52	0 5 33.58	2.69	
	29			D.	20.00	22.90	24.80	27.00	29.60							
	30			E.	49.49	52.60	55.20	57.50	0.50							
	31			A.	36.50	40.80	45.60	50.90	55.10							
	32			B.	30.40	34.00	38.51	42.60	46.46							
	33	α Cassiopeiæ . . .	--	C.	20.90	25.00	28.10	31.60	35.27	31 28.09	0.28	. . .	37.52	0 32 5.89	4.11	
	34			D.	10.11	14.20	18.00	21.70	25.70							
	35			E.	0.40	5.76	10.00	14.80	19.80							
	36			A.	1.41	4.00	6.49	9.59	12.00							
	37			B.	31.80	33.82	36.00	38.31	40.90							
	38	Saturn, 1st L. . .	--	C.	0.30	2.20	4.30	6.30	8.32	59 4.31	0.27	+ 0.63	37.52	0 59 42.73	. . .	
	39			D.	28.00	30.40	32.43	34.30	36.90							
	40			E.	56.20	59.50	2.10	4.70	7.35							
	41			A.	53.00	55.40	58.43	1.38	3.70							
	42			B.	23.80	25.80	28.11	30.68	32.52							
	43	θ^1 Ceti	--	C.	52.54	54.50	56.49	58.70	0.80	15 56.62	0.27	. . .	37.52	1 16 34.41	— 2.75	
	44			D.	20.40	23.00	25.00	27.15	29.38							
	45			E.	49.30	52.49	55.00	57.50	0.30							
	46			A.	45.00	47.43	50.20	53.41	55.80							
	47			B.	16.00	18.00	20.40	23.00	24.90							
	48	Uranus, centre . .	--	C.	45.00	47.00	48.90	51.00	53.00	41 48.92	+ 0.27	. . .	+ 37.52	1 42 26.71	. . .	
	49			D.	12.79	15.00	17.50	19.65	22.00							
	50			E.	41.68	44.80	47.48	50.00	53.00							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Nov. 14, 19.7	+ 37.52	0.000	+ 0.312	+ 0.026	— 0.038
21, 21.7	+ 66.73	+ 0.030			

Nov. 19. Clock stopped for a few seconds.

DATE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
1850. Nov. 20	1			A.	8.00	10.70	13.90	17.24	20.21							
	2			B.	42.40	44.69	47.38	50.07	52.30							
	3	ε Bootis	W.	C.	14.57	16.81	19.09	21.37	23.66	37 19.07	+ 0.28	- - -	+ 66.52	14 38 25.87	0.00	K.
	4			D.	45.70	48.44	50.70	53.13	55.89							
	5			E.	17.93	21.36	24.13	26.90	30.19							
	6			A.	59.31	8.86	19.43	30.80	40.36							
	7			B.	55.49	3.10	12.30	21.49	28.89							
	8	β Ursæ Minoris	--	C.	43.86	51.66	59.30	6.82	14.30	49 59.00	0.26	- - -	66.52	14 51 5.78	+ 6.05	
	9			D.	28.76	37.71	45.84	53.80	2.93							
	10			E.	17.40	28.57	38.12	47.49	58.50							
21	11			A.	20.19	22.87	25.87	29.00	31.66							
	12			B.	52.63	54.84	57.37	59.98	2.05							
	13	Sun, 1st L.	--	C.	22.96	25.13	27.26	29.39	31.50	47 27.27	0.26	— 69.24	66.55	15 47 24.84	- - -	
	14			D.	52.49	55.00	57.19	59.43	1.90							
	15			E.	22.79	25.92	28.76	31.20	34.38							
	16			A.	32.90	35.14	38.30	41.27	43.43							
	17			B.	3.72	5.89	8.36	10.86	12.69							
	18	Neptune	--	C.	32.83	35.00	36.90	39.00	41.00	24 36.86	0.25	- - -	66.75	22 25 43.86	- - -	
	19			D.	1.24	3.27	5.00	7.70	10.00							
	20			E.	29.81	32.93	35.40	38.00	40.91							
	21			A.	50.00	52.39	55.24	58.19	1.00							
	22			B.	20.89	22.91	25.40	27.80	29.77							
	23	ζ Pegasi	--	C.	49.67	51.90	53.92	56.00	58.00	32 53.85	+ 0.27	- - -	66.75	22 34 0.87	— 2.01	
	24			D.	17.74	20.30	22.21	24.40	26.88							
	25			E.	46.71	49.90	52.29	54.85	57.83							
	26			B.	38.49	40.60	43.50	46.30	48.59							
	27			C.	11.29	13.69	16.00	18.22	20.69							
	28	α Piscis Australis	--	D.	43.47	46.11	48.59	51.00	53.80	48 32.69	— 16.44	- - -	66.76	22 49 23.01	2.05	
	29			E.	16.23	19.89	22.77	25.43	29.06							
	30			A.	7.67	10.21	13.29	16.20	18.84							
	31			B.	39.23	41.28	43.79	46.30	48.29							
	32	α Pegasi	--	C.	8.54	10.73	12.80	14.60	16.89	56 12.71	+ 0.27	- - -	66.76	22 57 19.74	2.18	
	33			D.	37.00	39.62	41.69	43.88	46.30							
	34			E.	6.40	9.60	12.09	14.77	17.69							
	35			A.	6.50	8.74	11.67	14.69	17.11							
	36			B.	36.92	38.90	41.30	43.82	45.80							
	37	ι Piscium	--	C.	5.40	7.60	9.50	11.48	13.56	31 9.53	0.27	- - -	66.78	23 32 16.58	2.36	
	38			D.	33.29	35.71	37.80	39.91	42.14							
	39			E.	1.73	4.79	7.39	9.80	12.70							
	40			A.	21.80	24.30	27.00	30.17	32.80							
	41			B.	53.19	55.20	57.66	0.30	2.24							
	42	γ Pegasi	--	C.	22.37	24.45	26.60	28.80	30.70	4 26.63	0.27	- - -	66.79	0 5 33.69	— 2.62	
	43			D.	50.90	53.39	55.70	57.80	0.24							
	44			E.	20.41	23.46	26.05	28.69	31.66							
	45			A.	51.15	55.00	59.25	3.78	7.85							
	46			B.	38.58	41.72	45.38	49.15	52.15							
	47	η Ursæ Majoris	--	C.	22.68	26.20	28.78	32.00	35.20	40 28.98	0.28	- - -	67.55	13 41 36.81	+ 0.67	B.
	48			D.	5.60	9.48	12.50	16.00	19.45							
	49			E.	50.00	54.40	58.52	2.50	7.20							
	50			B.	50.79	52.75	55.40	57.90	59.90							
	51	η Bootis	--	C.	20.80	22.80	25.20	27.25	29.38	46 25.07	+ 0.28	- - -	+ 67.55	13 47 32.90	— 0.44	
	52			D.	50.00	52.70	54.69	57.00	59.50							

Date	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Nov. 21, 21.7	+ 66.73	+ 0.030	+ 0.312	+ 0.026	— 0.038
21, 14.0	+ 67.55	0.000			

DATE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	I.	II.	III.	IV.	V.	Mean.	Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
			TIMES OF TRANSIT OVER WIRES.								CORRECTIONS FOR—					
1850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Nov. 21	1			A.	34.60	37.30	40.40	43.59	46.40							
	2			B.	7.00	9.40	11.89	14.40	16.60							
	3	α Bootis	W.	C.	37.38	39.80	41.68	43.80	46.00	7 41.67	+ 0.28	- - -	+ 67.55	14 8 49.50	— 0.27	B.
	4			D.	6.52	9.15	11.40	13.90	16.18							
	5			E.	37.10	40.25	42.90	45.49	48.57							
22	6			A.	12.60	15.29	18.20	21.90	24.50							
	7			B.	45.29	47.40	50.10	52.72	54.90							
	8	Sun, 1st L.	--	C.	15.70	18.00	20.10	22.15	24.00	49 4.67	15.07					
	9			D.	45.27	47.80	50.08	52.30	55.00							
	10			A.	31.42	34.12	37.30	40.42	43.10			(69.66)	67.55	15 51 36.95	- - -	
	11			B.	4.00	6.20	8.75	11.59	13.63							
	12	Sun, 2d L.	--	C.	34.35	37.00	39.00	41.00	43.10	51 38.81	+ 0.26					
	13			D.	3.85	6.60	8.63	10.80	13.70							
	14			E.	34.30	37.73	40.50	43.00	46.18							
24	15			C.	14.91	17.07	19.44	21.70	23.93							
	16	ε Bootis	--	D.	46.11	48.80	51.00	53.53	56.17	37 51.63	— 31.96	- - -	66.54	14 38 26.21	— 0.07	K.
	17			E.	18.26	21.53	24.39	27.17	30.43							
	18			A.	59.96	8.90	19.89	31.30	40.54							
	19			B.	55.77	3.59	12.87	21.86	29.33							
	20	β Ursæ Minoris . .	--	D.	29.10	37.72	46.07	53.84	3.00	49 59.29	+ 0.26	- - -	66.54	14 51 6.19	+ 5.96	
	21			E.	17.39	29.10	38.53	48.10	59.00							
25	22			A.	55.39	57.90	1.00	4.33	7.00							
	23			B.	30.26	32.77	35.53	37.69	40.00							
	24	Sun, 1st L.	--	C.	58.73	0.80	2.89	5.10	7.27	2 3.60						
	25			D.	28.39	30.92	32.70	35.37	37.69							
	26			E.	58.52	1.80	4.40	7.18	10.31							
	27			A.	14.88	17.50	20.34	23.59	26.32		0.26	(69.41)	66.53	16 4 19.60	- - -	
	28			B.	47.40	49.51	52.09	54.89	56.87							
	29	Sun, 2d L.	--	C.	18.00	20.44	22.19	24.30	26.51	4 22.23						
	30			D.	47.50	49.92	52.38	54.76	57.00							
	31			E.	17.90	21.25	23.78	26.70	29.82							
26	32			A.	1.60	4.43	7.43	10.80	13.50							
	33			B.	35.69	37.81	40.60	43.22	45.41							
	34	Venus, 1st L. . .	--	C.	7.30	9.80	12.00	14.00	16.60	8 11.85	0.25	+ 1.94	65.75	18 9 19.79	- - -	B.
	35			D.	38.00	40.80	43.20	45.59	48.33							
	36			E.	10.00	13.20	16.00	18.80	22.00							
	37			A.	24.75	28.00	31.31	35.38	38.48							
	38			B.	3.75	6.21	9.40	12.55	15.00							
	39	α Lyræ	--	C.	40.28	42.70	45.40	48.00	50.50	30 45.33	0.28	- - -	65.75	18 31 51.36	+ 0.16	
	40			D.	15.50	18.49	21.25	24.10	27.00							
	41			E.	52.00	55.80	59.00	2.30	6.00							
30	42			A.	8.23	11.00	13.90	16.55	19.21							
	43			B.	38.80	41.10	43.30	46.00	47.80							
	44	ι Piscium	--	C.	7.40	9.65	11.40	13.29	15.60	31 11.50	0.27	- - -	64.56	23 32 16.33	— 2.26	
	45			D.	35.21	37.58	39.58	41.80	44.00							
	46			E.	3.50	7.00	9.28	11.70	14.58							
	47			A.	24.90	27.62	31.00	34.19	37.00							
	48			B.	59.50	1.75	4.50	7.11	9.67							
	49	α Andromedæ . .	--	C.	31.80	34.18	36.38	38.50	41.00	59 36.38	+ 0.28	- - -	+ 64.55	0 0 41.21	— 2.67	
	50			D.	3.20	6.00	8.58	10.70	13.25							
	51			E.	35.40	39.00	41.80	44.70	47.80							

Date.	Clock.	Hourly rate.	VALUE OF *m.*	VALUE OF *n.*	VALUE OF *c.*
h.	s.	s.	s.	s.	s.
Nov. 21, 14.0	+ 67.55	0.000	+ 0.312	+ 0.026	— 0.038
24, 14.7	66.54	— .012			
26, 18.5	65.75	.012			
30, 0.5	+ 64.54	— .022			

E.	No for ref.	OBJECT OBSERVED.	Clamp	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
).					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
30	1			A.	23.72	26.20	29.00	32.35	34.80							
	2			B.	55.00	57.27	59.70	2.25	4.40							
	3	γ Pegasi	W.	C.	24.29	26.63	28.70	30.80	33.00	4 28.6	+ 0.27	. . .	+ 64.55	0 5 33.50	— 2.52	B.
	4			D.	53.15	55.50	57.90	59.60	2.30							
	5			E.	22.49	25.70	28.00	30.78	33.59							
	6			A.	54.48	57.00	0.20	3.50	6.18							
	7			B.	26.70	28.70	31.40	34.00	36.10							
	8	β Ceti	--	C.	57.00	59.00	1.00	3.00	5.30	35 1.02	0.26	. . .	64.54	0 36 6.82	2.43	
	9			D.	26.00	28.32	30.60	32.72	35.40							
	10			E.	56.25	59.15	2.00	4.60	7.48							
	11			A.	25.75	28.30	31.15	34.23	36.80							
	12			B.	56.59	58.85	1.19	3.20	5.60							
	13	θ^1 Ceti	--	C.	25.20	27.49	29.40	31.58	33.40	15 29.47	+ 0.26	. . .	64.53	1 16 34.26	2.67	
	14			D.	53.21	55.82	58.00	0.00	2.30							
	15			E.	22.18	25.18	27.65	30.38	33.22							
13	16			B.	16.16	19.70	24.20	28.46	32.20							
	17			C.	7.11	10.60	13.74	17.40	21.05							
	18	α Cassiopeiæ . . .	--	D.	56.13	59.93	3.49	7.50	11.73	31 39.41	— 25.27	. . .	50.96	0 32 5.18	3.48	K.
	19			E.	46.13	51.63	56.20	0.74	5.78							
	20			A.	7.69	10.40	13.41	16.30	19.00							
	21			B.	40.10	42.19	44.90	46.90	49.42							
	22	β Ceti	--	C.	10.18	12.20	14.30	16.53	18.60	35 14.26	+ 0.26	. . .	50.96	0 36 5.48	2.29	
	23			D.	39.10	41.62	43.80	46.15	48.81							
	24			E.	9.35	12.52	15.00	17.50	20.70							
	25			B.	59.29	1.12	3.80	6.00	8.10							
	26			C.	27.57	29.60	31.59	33.53	35.83							
	27	Ceti, (242) . . .	--	D.	55.20	57.87	59.90	2.00	4.53	44 46.14	— 14.13	. . .	50.96	0 45 22.97	2.48	
	28			E.	24.00	26.86	29.39	31.79	34.70							
	29			C.	15.19	17.14	19.11	21.17	23.28							
	30	Saturn, 1st L. . .	--	E.	11.40	14.40	17.00	19.00	22.27	55 47.19	— 28.52	(0.56)	50.95	0 56 10.98	. . .	
	31			B.	47.56	50.00	52.30	54.87	56.69							
	32	Saturn, 2d L. . .	--	D.	43.80	46.19	48.49	50.50	53.00	55 20.34	+ 0.25					
	33			A.	13.63	16.20	19.00	22.00	24.79							
	34			B.	45.00	47.00	49.50	51.80	53.90							
	35	Moon, 1st L. . .	--	C.	14.00	16.00	18.00	20.00	22.15	5 17.97	0.27	+ 63.02	50.93	1 7 12.21	. . .	
	36			D.	42.20	44.55	46.49	48.60	51.12							
	37			E.	11.20	14.30	16.40	19.13	22.30							
	38			A.	46.30	48.69	51.68	54.61	57.00							
	39			B.	16.80	18.63	27.30	23.73	25.71							
	40	ν Piscium	--	C.	45.27	47.50	49.20	51.30	53.30	32 49.34	0.27	. . .	50.93	1 33 40.54	2.81	
	41			D.	12.89	15.22	17.60	19.50	22.10							
	42			E	41.37	44.61	47.00	49.70	52.50							
	43			A.	36.50	39.00	41.78	44.00	46.40							
	44			B.	7.41	9.50	11.70	14.50	16.43							
	45	ο Piscium	--	C.	36.50	38.16	40.21	42.14	44.10	36 40.12	0.27	. . .	48.59	1 37 31.32	2.87	
	46			D.	3.90	6.40	8.49	10.79	13.10							
	47			E	33.00	35.90	38.50	40.79	43.83							
18	48	γ Pegasi	--	C.	40.20	42.40	44.50	46.55	48.30	4 44.39	0.27	. . .	48.57	0 5 33.25	2.32	B.
	49			A.	24.00	28.70	33.70	38.50	43.15							
	50			B.	18.58	21.80	26.30	30.78	35.00							
	51	α Cassiopeiæ . . .	--	C.	9.15	12.50	16.00	19.50	23.38	31 16.35	+ 0.28	. . .	+ 48.57	0 32 4.94	— 3.35	
	52			D.	58.00	2.00	6.00	9.74	14.00							
	53			E.	48.70	53.80	58.00	3.00	8.00							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Nov. 30, 0.5	+ 64.54	— 0.022	+ 0.312	+ 0.026	— 0.038
Dec. 13, 0.6	50.96	.030			
18, 0.6	+ 48.57	— 0.046			

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp.	Set.	I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R Ascension.	Reduct'n to 1850.0	Observer.
1850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m s.	s.	
Dec. 18	1			A.	15.00	17.48	20.00	23.00	25.48							
	2			B.	45.40	47.20	49.53	52.18	54.10							
	3	Saturn, 1st L. . .	W.	C.	13.70	47.57	18.00	19.80	21.90	55 17.83	+ 0.27	+ 0.60	+ 48.56	0 56 7.26	. . .	B.
	4			D.	41.40	44.00	45.80	48.00	50.40							
	5			E.	10.00	13.00	15.65	18.11	21.08							
	6			A.	41.58	44.10	47.00	49.80	52.48							
	7			B.	12.38	14.40	16.80	19.30	21.11							
	8	θ^1 Ceti	--	C.	41.18	43.22	45.29	47.30	49.20	15 45.23	0.26	. . .	48.54	1 16 34.03	— 2.51	
	9			D.	9.10	11.60	13.60	15.80	18.20							
	10			E.	38.00	40.89	43.50	46.00	48.80							
	11			A.	25.00	56.00	43.00	45.00	18.00							
	12			B.	10.00	26.00	1.00	32.00	50.00							
20	13	Polaris	--	C.	31.00	51.00	8.00	22.00	40.00	5 5.64	— 0.15	. . .	45.69	1 5 51.18	43.22	
	14			D.	10.00	51.00	14.00	36.00	8.00							
	15			E	46.00	46.00	21.00	56.00	50.00							
	16	θ^1 Ceti	--	C.	43.76	46.00	48.00	50.00	52.00	15 47.95	+ 0.26	. . .	45.68	1 16 33.89	2.48	
	17			A.	52.80	55.38	58.30	1.79	4.46							
	18			B.	25.79	28.00	30.68	33.28	35.39							
	19	α Arietis	--	C.	56.49	58.80	0.70	3.00	5.30	58 0.95	0.28	. . .	45.66	1 58 46.89	3.23	
	20			D.	26.70	29.19	31.40	33.60	36.10							
	21			E.	57.30	0.60	3.21	6.10	9.35							
	22			A.	46.00	48.46	51.39	54.28	57.00							
	23			B.	16.58	18.40	21.25	23.48	25.20							
	24	γ Ceti	--	C.	45.12	47.18	49.15	51.18	53.00	34 49.08	+ 0.27	. . .	45.64	2 35 34.99	3.02	
	25			D.	12.58	15.00	17.30	19.20	21.58							
	26			E.	41.30	44.25	46.80	49.20	52.10							
26	27	Polaris	--	C.	27.00	41.00	0.00	14.00	35.00	4 59.40	— 0.15	. . .	42.61	1 5 41.86	38.08	
	28			A.	47.40	50.00	52.88	55.79	58.18							
	29			B.	18.29	20.35	22.70	25.20	27.18							
	30	θ^1 Ceti	--	C.	47.00	49.00	51.10	53.00	55.15	15 51.11	+ 0.26	. . .	42.61	1 16 33.78	2.42	
	31			D.	15.00	17.40	19.60	21.70	24.00							
	32			E.	43.80	46.85	49.40	52.00	54.76							
	33			A.	56.45	58.80	1.60	4.60	7.25							
	34			B.	27.28	29.31	31.80	34.28	36.20							
	35	Uranus	--	C.	56.00	58.20	0.40	2.20	4.29	38 0.17	0.27	. . .	42.61	1 38 43.05	. . .	
	36			D.	24.11	26.45	28.60	30.75	33.25							
	37			E.	53.00	56.00	58.50	1.00	4.00							
	38			A.	55.66	58.20	1.48	4.69	7.30							
	39			B.	28.60	30.79	33.50	36.15	38.25							
	40	α Arietis	--	C.	59.40	1.66	3.80	6.00	8.23	58 3.84	0.28	. . .	42.61	1 58 46.73	3.17	
	41			D.	29.58	32.00	34.22	36.40	39.00							
	42			E.	0.40	3.49	6.30	8.80	12.10							
	43			A.	49.20	51.60	54.30	57.20	59.70							
	44			B.	19.48	21.50	23.80	26.30	28.32							
	45	γ Ceti	--	C.	48.00	50.00	52.00	54.00	56.10	34 52.00	+ 0.27	. . .	+ 42.61	2 35 34.88	— 2.98	
	46			D.	15.65	18.00	20.18	22.20	24.55							
	47			E.	44.10	47.00	40.70	52.16	55.00							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s
Dec. 18, 0.6	+ 48.57	— 0.046	+ 0.312	+ 0.026	— 0.038
20, 1.9	45.66	— 0.040			
26, 1.9	+ 42.61	0.000			

OBSERVATIONS

WITH

THE MURAL CIRCLE,

1849.

NATIONAL OBSERVATORY.

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Rev.	r.	In.
January 4	†1	Moon, S. L.	- -	— 3.6	46 7 30.3	35.0	41.0	28.4	34.7	15.0	30.73	31.0597	31.0284	29.872
	†2	η Tauri	4	- - -	35 14 60.0	64.9	70.8	55.8	61.2	47.1	59.97	30.6367		.868
	†3	Tauri, (1241)	4	- - -	46 49 59.2	64.1	70.2	56.2	62.9	46.9	59.93	31.3255		.864
	†4	Nadir	- -	- - -	199 59 57.8	64.0	68.2	57.4	58.7	48.2				
	5				57.7	64.0	68.0	57.5	58.4	48.2				
											58.845	31.0100		
	6				57.4	64.0	67.2	56.9	58.9	48.1				
	†7				57.2	63.9	67.1	57.0	58.6	47.9				
	8	α Aurigæ	4	- - -	13 4 60.1	66.1	71.1	56.1	61.9	47.9	60.53	32.3890		.870
	†9	β Tauri	4	- - -	30 24 59.8	64.3	70.2	56.5	61.9	47.8	60.08	30.9035		.856
	†10	δ Orionis	4	- - -	59 14 59.9	67.3	72.1	59.7	64.8	50.2	62.33	28.2674		
	11	α Columbæ	4	- - -	92 59 59.5	66.7	70.5	58.9	62.1	46.9	60.77	31.0155		.870
12	12	α Arietis	4	- - -	36 9 60.0	63.9	69.9	55.8	61.2	45.3	59.35	32.0904	30.8084	30.632
	13	γ Ceti	4	- - -	56 19 60.2	64.5	70.5	57.2	62.8	47.6	60.47	33.4122		.630
	14	α Ceti	4	- - -	55 24 60.0	64.8	71.9	58.3	62.7	47.2	60.82	32.3169		.632
	15	α Persei	4	- - -	59 34 59.2	63.5	70.0	54.3	59.0	43.8	58.30	31.0875		.624
	16	η Tauri	4	- - -	35 14 60.0	63.8	69.3	53.8	59.2	45.4	58.58	30.3544		.622
	17	γ^1 Eridani	4	- - -	72 49 59.3	65.0	70.3	57.0	61.8	45.4	59.80	31.7557		.620
	18	α Tauri	4	- - -	42 39 60.0	65.0	70.0	55.0	60.8	44.8	59.27	29.5596		.600
	19	α Aurigæ	4	- - -	13 4 60.0	66.8	72.0	57.5	62.0	46.5	60.80	32.1632		.598
	20	β Tauri	4	- - -	30 24 60.0	65.1	71.5	57.2	62.2	47.0	60.50	30.6601		.598
	21	ε Orionis	4	- - -	60 9 60.0	65.3	72.3	58.0	63.2	47.8	61.10	29.7252		.592
	22	α Orionis	4	- - -	51 29 60.0	65.8	72.2	58.0	63.5	46.8	61.05	30.1086		.588
	23	Nadir	- -	- - -	199 59 60.0	66.9	71.5	61.2	60.8	49.3				
	24				60.0	67.2	71.3	60.8	61.3	49.0	61.608	30.8340		
	25	α Canis Majoris	4	- - -	75 24 60.0	66.3	74.0	58.9	63.8	47.3	61.72	32.6597		30.578
	26	δ Geminorum	4	- - -	36 39 60.2	64.5	71.3	56.8	60.0	45.0	59.63	30.5058		.562
23	27	α Tauri	4	- - -	42 39 60.6	65.5	71.4	56.9	64.9	49.9	61.38	29.5550	30.7957	.284
	†28	Lalande, (9106)	4½	- - -	14 59 59.6	64.8	70.7	54.9	61.6	46.5	59 68	25.7312		.280
	29	Nadir	- -	- - -	199 59 58.9	62.9	70.1	54.7	59.9	47.8				
	30				58.9	62.8	69.9	54.6	59.7	47.8				
											59.071	30.7808		
	31				59.0	63.3	70.1	54.9	60.2	47.5				
	32				58.7	63.5	69.9	55.0	60.1	47.5				
25	†33	Sun, S. L.	- -	— 32.8	77 59 57.7	62.1	69.4	52.1	62.9	46.2	58.40	30.8180	30.7972	30.076
	†34	Sun, N. L.	- -	+ 32.2	25 26.9	30.1	38.4	22.1	32.9	14.8	27.53	28.9576		
	35	Nadir	- -	- - -	199 59 59.8	63.1	69.1	54.9	61.1	49.9				
	36				.6	.1	68.9	55.1	60.8	.9	59.538	30.7898		
	37				.1	.4	69.0	54.9	61.1	.3				
	38				.1	.1	68.8	55.0	61.2	.6				
27	39	Nadir	- -	- - -	199 59 61.6	68.3	71.2	63.4	60.3	52.7			30.7779	
	40				.3	.2	.2	.5	.1	.9				
											62.767	30.8219		
	41				.1	.7	.2	62.7	.2	.6				
	42				.1	.8	.1	.5	.1	.6				
	†43	β Geminorum	4	- - -	30 29 60.7	64.9	71.2	56.3	61.4	49.2	60.62	30.3296		30.404
February 3	44	Nadir	- -	- - -	199 59 59.8	63.5	69.8	55.2	60.0	49.2			30.7777	
	45				.5	.8	70.0	.5	59.8	.2				
											59.683	30.7726		
	46				.5	64.0	69.5	.5	60.2	.5				
	47				.8	63.8	70.0	56.0	59.5	.8				
	48	β Orionis	4	- - -	67 14 59.0	65.8	71.3	56.8	63.8	49.2	60.98	30.2240		30.222
	49	β Tauri	4	- - -	30 24 58.5	61.8	68.8	53.8	62.0	45.3	58.37	30.6561		.216
	50	δ Orionis	4	- - -	59 19 60.0	65.2	72.2	55.9	65.9	50.3	61.58	32.7640		.212
	51	α Orionis	4	- - -	51 24 60.3	66.5	72.0	56.9	66.8	49.8	62.05	25.3090		.216
	52	α Canis Majoris	4	- - -	75 24 60.0	65.4	73.0	57.8	65.0	45.3	61.08	32.5583		.212
6	†53	δ Ursæ Minoris, S. P.	- -	+ 18.8	325 29 60.8	62.9	70.6	53.6	62.9	47.7	59.75	30.0136	30.7790	29.876
	†54	51 (Hev.) Cephei	- -	— 35.1	331 39 61.0	64.3	72.9	56.0	63.1	48.2	60 92	31.4424	- -	.876
	55	ε Canis Majoris	4	- - -	87 34 60.9	64.7	71.2	57.7	64.1	49.0	61.27	28.1829	- -	.874
	†56	δ Geminorum	4	- - -	36 39 61.1	65.1	72.1	57.2	64.1	48.9	61.42	32.5177	- -	.868
	†57	α^1 Geminorum	4	- - -	26 39 67.6	71.5	78.0	64.2	69.6	54.2	67.52	30.0574	- -	.866
	†58	α^2 Geminorum	4	- - -	- - -	--	--	--	--	--	- -	30.1018	- -	
	†59	α Canis Minoris	4	- - -	53 14 59.2	63.5	69.7	55.0	62.1	47.0	59.42	29.1199	- -	
	†60	β Geminorum	4½	- - -	30 29 58.6	62.5	69.8	53.0	61.2	47.1	58.70	30.3195	- -	

No. for ref.	Thermometers At.	Ex.	St.	Up.	Low.	Corrections for— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	Remarks.
	°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
1	36.0	23.7	40.0	31.0	34.3	— 2.47	— 42 7.20	45 25 21.06	+ 13 28 18.19		C.	Values of Mic. revolutions: ″
2	34.7	23.4		30.2	34.0	+ 24.61	+ 16.72	35 15 41.30	23 37 57.95	+ 15.90		January to March 1 - - 1r. = 62.819.
3	33.2	23.2				— 18.67	+ 31.01	46 50 12.27	12 3 26.98	18.44		March 1 to May 21 - - .811.
4			40.0	33.0	33.5							May 21 to June 30 - - .849.
5				36.3								July 1 to August 1 - - .845.
												September 20 to Nov. 30 62 818.
6				38.5	37.3							1. Mean hour angle of seven contacts.
7												2. Very unsteady.
8	34 2	23.0		34.5	37.0	— 1 25.48	— 7.47	13 3 27.58	45 50 11.67	8.67		3. Do.
9	33.5	22.6				+ 7.85	+ 11 29	30 25 19.22	+ 28 28 20.03	11.00		9. Unsteady.
10		22.7				2 53.44	50.22	59 18 46.99	— 0 25 7.74	14.83		11. Do.
11	32.1	22.7		28.2	32.2	+ 0.81	3 18.59	93 3 20.17	— 34 9 40.92	17.51		4 to 7. Mercury very much shaken by wind;
12	35.2	22.8				— 1 20.53	18.22	36 8 57.04	+ 22 44 42.21	17.76	S	observation poor.
13	35.5	22.3				2 43.56	46.25	56 18 3.16	2 35 36.09	24.20		
14	35.0	20.9				1 34.75	+ 44.88	55 24 10.95	3 29 28.30	23.44		
15	34.5	20.5				— 17.52	— 11.63	9 34 29.15	49 19 10.10	9.21		
16	33.4	20.0				+ 28.52	+ 17.27	35 15 44.37	+ 23 37 54.88	15.76		
17	32.3	19.5				— 59.51	1 23.42	72 50 23.71	— 13 56 44.46	25.88		
18	30.3	17.5			31.0	+ 1 18.44	+ 26.60	42 41 44.31	+ 16 11 54.94	15.70		
19	30.5	16.8				— 1 25.10	— 7.76	13 3 27.94	45 50 11.31	8.06		
20	30.5	17.0				+ 9.32	+ 11.71	30 25 21.53	+ 28 28 17.72	10.55		
21	29.5	17.6				1 8.04	53.68	60 12 2.82	— 1 18 23.57	15.46		
22	29.3	18.3				+ 43.96	38.92	51 31 23.93	+ 7 22 15.32	12.55		
23			32.8	33.0	32.0							
24												
25	29.5	17.6				— 1 56.29	1 31.90	75 24 37.33	— 16 30 58.08	8.70		
26	29.0	18.0				— 1 46.64	18.97	36 38 31.96	+ 22 15 7.29	4.98		
27	40.0	31.2				+ 1 17.95	+ 25.56	42 41 44.89	16 11 54.36	16.09	C.	
28	39.5	30.9		37.3	38.0	+ 5 18.14	— 5.26	15 5 12 56	+ 43 48 26.69	7.89		28. Other stars in field too faint for observation.
29				36.8	37.0							
30				38.5	38.7							
31												
32												
33	46.7	51.2				— 1.65	+ 1 25.70	78 1 22.45 }	— 18 51 25.60		C.	33 to 34. Mean hour angles of four contacts of
34		52.7	44.0	48.5	46.0	+ 1 55.90	1 23.81	77 28 47.24 }				each limb. Sun's observed semi-diameter,
35			44.0	49.0	46.7							16′ 17″.61.
36				50.0	46.5							
37												
38												
39			48.7	38.2	37.5						C.	
40				40.0	39.5							
41												
42												
43	38.7	26.4	48.7	41.2	40.7	28.16	11.49	30 30 40.27	+ 28 22 58.98	2.55		43. Very unsteady.
44			42.0	41.8	40.0						S.	
45												
46												
47												
48	41.0	29.2				34.78	1 6.22	67 16 41.98	— 8 23 2.73	21.3[illegible]		
49	40.3	29.0				+ 7.64	11.27	30 25 17.28	+ 28 28 21.97	9.95		
50	40.0	28.7				— 2 4.77	50.15	39 18 46.96	— 0 25 7.71	17.83		
51	39.0	28.3				+ 5 43.53	37.62	51 31 23.20	+ 7 22 16.05	14.06		
52	37.0	27.0				— 1 51.85	+ 1 28.97	75 24 38.20	— 16 30 58.95	15.34		
53	40.5	32.1	43.7	40.5	40.5	+ 48.08	— 1 24.19	325 29 23.64	+ 86 35 44.39	+ 5.95	C.	53. Unsteady; mean hour angle of eleven bi-
54	40.5	32.1		40.5	40.3	— 41.68	— 1 7.59	331 38 11.65	+ 87 15 27.60	— 5.57		sections, at intervals of 15s.
55	38.7	31.3				+ 2 43.08	+ 2 25.58	87 40 9.93	— 28 46 30.68	+ 14.63		54. Unsteady; mean hour angle of 11 bisections.
56	38.5	31.2		35.7	38.0	— 1 49.22	18.02	36 38 30.22	+ 22 15 9.03	4.67		56. Unsteady.
57	37.8	30.6				+ 45.33	7.07	26 40 59.92	32 12 39.33	1.99		57. Unsteady; four bisections
68						42.54	7.07	26 40 57.13	32 12 42.12	1.99		58. Unsteady; three bisections.
59		30.7				1 44.22	39.61	53 17 23.25	5 36 16.00	5.01		59. Unsteady.
60						+ 28.90	+ 11.20	30 30 38.80	+ 28 23 0.45	+ 2.06		60. Do.

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angles.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
February 6	1	Nadir			199 59 60.8	66.2	71.8	59.8	62.1	51.1			30.7790	
	2				.9	.5	.9	.8	.0	.1				
	3				.9	.9	.7	.9	.2	50.4	62.058	30.8118		
	4				.9	67.1	.9	60.1	.0	.8				
	5	ε Hydræ	4		51 54 60.7	66.1	72.2	58.9	64.8	50.0	62.12	30.7439	- -	29.866
	† 6	ι Ursæ Majoris	4		10 14 60.1	66.1	72.9	57.3	63.2	47.8	61.23	30.6767	- -	.864
	† 7	Moon, N. L.		— 34.9	44 59 59.8	64.1	70.8	55.7	61.4	46.6	59.73	31.3181	- -	.864
	† 8	Moon, S. L.		+ 27.6	45 29 59.6	65.1	71.5	57.0	62.8	47.1	60.52	28.6960		
	† 9	Jupiter, S. L.	4		42 19 58.2	64.5	70.2	55.2	62.8	47.6	59.75	31.7953	- -	.860
	†10	Jupiter, N. L.	4		- - -	--	--	--	--	--	- -	32.5048		
	11	Leonis (3250)	4		46 54 58.9	63.5	70.1	55.0	62.5	46.2	59.37	30.3877	- -	.860
	12	ε Leonis	4		34 24 57.8	63.4	70.2	54.8	59.8	45.5	58.58	30.2061	- -	.860
7	13	β Tauri	4		30 24 59.6	63.2	70.8	55.3	62.0	48.0	59.82	30.6837	30.7986	30.332
	14	ε Orionis	4		60 9 60.2	63.3	71.2	56.0	63.3	47.8	60.30	29.6424	- -	.332
	15	Nadir			199 59 59.8	64.0	71.0	58.0	60.5	49.9				
	16				60.0	.2	.2	.0	61.0	.9	61.220	30.8180		
	17				.2	66.8	70.8	59.8	62.5	50.0				
	18				.3	67.2	71.2	.6	63.1	.3				
10	†19	Venus, S. L.	4		55 29 61.4	63.9	72.1	58.1	64.2	48.4	61.35	30.3456	30.7896	30.686
	†20	Venus, N. L.	4		- - -	--	--	--	--	--	- -	30.6741		
	21	Nadir			189 59 60.2	65.4	71.2	57.8	62.2	47.7				
	22				.3	.6	.4	.9	61.9	.9				
	23				58.9	.3	.1	.9	.4	.9				
	24				.9	.4	.0	.9	.4	.9	60.416	30.7961		
	25				59.1	.0	70.4	.2	60.9	.6				
	26				.1	64.8	70.5	.2	61.2	.6				
	†27	δ Geminorum	4		36 39 60.2	64.5	70.2	56.4	62.2	46.1	59.93	32.5074	- -	29.976
	28	a^1 Geminorum	4		26 39 53.6	57.6	63.9	48.9	53.6	38.6	52.70	29.8395	- -	.956
	29	a^2 Geminorum	4		- - -	--	--	--	--	--	- -	29.8786		
	30	β Geminorum	4		30 29 59.3	63.1	69.8	55.0	61.5	46.0	59.12	30.3317	- -	.963
16	†31	Sun, S. L.		— 24.5	71 19 60.0	68.2	72.8	59.0	64.0	47.3	61.88	30.1757	30.8215	.974
	†32	Sun, N. L.		+ 38.0	70 44 59.8	68.6	71.3	60.3	65.3	47.2	62.08	28.7994	- -	.970
	33	Nadir			199 59 59.8	66.3	71.5	59.8	60.2	47.8				
	34				60.1	.3	72.0	.9	.6	.3				
	35				59.5	.3	71.2	60.0	.3	.6	60.958	30.8369		
	36				59.4	.6	71.8	.4	.8	.5				
17	†37	Sun, S. L.		— 28.2	70 59 61.2	68.1	73.1	59.9	66.0	49.5	62.97	32.1913	30.8232	.996
	†38	Sun, N. L.		+ 39.0	70 24 60.6	67.2	72.5	59.1	65.6	49.1	62.35	29.7447		
	39	Nadir			199 59 59.5	64.8	70.7	57.7	60.2	47.8				
	40				.7	.8	.2	.9	.4	.8				
	41				.2	.9	.2	58.0	61.0	48.0	60.229	30.8269		
	42				.8	.9	.7	.1	.2	.0				
24	†43	Sun, N. L.		— 27.2	67 54 59.5	63.8	70.3	55.1	63.2	47.7	59.93	31.2261	30.8263	30.254
	†44	Sun, S. L.		+ 40.0	68 29 59.6	63.8	70.4	55.7	62.4	47.9	59.97	33.7336		
	45	Nadir			199 59 60.1	63.7	69.5	56.5	60.4	48.8				
	46				.0	.9	.6	.6	.2	49.0	59.896	30.8247		
	47				.1	64.2	.7	57.0	.6	48.6				
	48				59.9	.2	.6	56.4	.1	.8				
Mar. 10	49			— 0 11.0	335 29 61.4	63.1	69.7	53.3	63.4	49.5	60.07	30.173	30.8186	29.832
	50			+ 19.0								.175		
	51			0 49.0								.172		
	52			1 19.0								.168		
	53			49.0								.166		
	54	δ Ursæ Minoris, S. P.	4½	2 19.0								.160		
	55			49.0								.156		
	56			3 19.0								.152		
	57			49.0								.150		
	58			4 19.0								.146		
	59			49.0								.142		
	60			+ 5 19.0								.132		

No. for ref.	THERMOMETERS. At.	Ext.	St.	Up.	Low.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
	°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″		
1			43.8		37.8						C.	
2				37.8	38.0							
3												
4												
5	36.8	30.5		36.5	36.7	+ 2.20	+ 37.61	51 55 41.93	+ 6 57 57.32	+ 0.20		
6	36.5	30.7				+ 1 9.24	− 10.36	10 16 0.11	48 37 39.14	− 3.65		6. Unsteady.
7	36.5	30.5		36.2	37.0	− 29.37	24 7.97	44 35 21.89	14 2 13.38			7 to 8. Moon's semi-diam., 16′ 4″.08; applied 0″.26 cor. for defective illumination of N. limb. Mean hour angle of 3 contacts of each limb.
8						+ 2 7.34	− 25 37.31	45 7 29.95				
9	36.5	31.0				− 1 3.83	+ 24.02	42 19 19.94	16 34 41.59			9. Unsteady.
10						− 1 48.41	24.03	42 18 35.37				
11	36.5	30.8				+ 24.58	30.65	46 55 54.60	11 57 44.65	3.23		9 to 10. Jupiter's semi-diam 22″.28. Mean of 4 contacts S. limb; 3 contacts N. limb.
12	36.0	31.0	42.8	36.2	37.5	35.99	15.52	34 25 50.09	24 27 49.16	− 3.91		
13	37.2	23.9				7.22	11.44	30 25 18.48	+ 28 28 20.77	+ 9.70	S.	
14	37.5	23.5				1 12.63	52.53	60 12 5.46	− 1 18 26.21	17.92		
15			42.0	41.8	40.0							
16												
17												
18												
19	40.5	37.4		40.5	39.0	27.89	36.95	55 31 6.19	+ 3 22 43.78		C.	19. Unsteady.
20						+ 7.26	36.13	55 30 44.74				19 to 20. Venus' semi-diam., 10″.72; applied 0″.82 cor. for defective illumination of N limb. Mean of 4 contacts S. limb; 3 of N. limb.
21			38.5	34.0	35.3							
22				36.0	36.3							
23				36.8	37.4							
24												
25												
26												
27	35.5	29.5	39.0		33.2	− 1 47.91	18.16	36 38 30.18	22 15 9.07	4.44		27. Unsteady; hazy cool south wind blowing into room.
28	35.4	29.4		32.0	33.8	+ 59.68	7.12	26 40 59.50	32 12 39.75	1.54		
29						57.27	7.12	26 40 57.11	32 12 42.14	1.54		
30	35.2	29.4		32.0	34.0	+ 28.76	11.27	30 30 39.15	+ 28 23 0.10	1.68		
31	24.5	22.2				− 22.61	1 10.19	71 20 49.46	− 12 10 54.75		S.	31 to 32. Sun's semi-diam., 16′ 15″.46. Mean hour angles of 2 contacts of each limb.
32	24.8	23.2	30.0	29.5	28.5	+ 2 7.70	1 8.77	70 48 18.55				
33			30.0	32.5	29.0							
34												
35												
36												
37	30.5	26.9				− 1 26.35	1 8.50	70 59 45.12	11 49 52.23			37 to 38. Very unsteady; poorly defined through light clouds. Sun's observed semi-diam., 16′ 13″.64. Mean hour angle of 4 contacts of S. limb; 2 of N. limb.
38		28.0	29.0	31.5	29.3	+ 1 8.32	1 7.17	70 27 17.84				
39			36.7	26.5	28.4							
40				28.5	30.0							
41												43. Very unsteady; poorly defined; S. limb obscured by clouds.
42												
43	40.0	42.4				− 25.53	0 59.63	67 55 34.03	− 9 18 7.16			43 to 44. Sun's semi-diam., 16′ 12″.38. Mean hour angles of 4 contacts of each limb.
44		42.5	36.5	41.5	38.0	3 2.01	+ 1 0.83	68 27 58.79				
45			36.5	41.6	38.0							
46				42.5	38.0							
47												
48												
49	50.0	43.8	46.7	49.0	47.0	40.66					S.	
50						40.52						
51						40.63						
52						40.75						
53						40.69						
54						40.81						
55						40.81	− 1 22.03	325 29 18.50	+ 86 35 39.25	+ 11.98		
56						40.63						
57						40.33						
58						40.10						
59						39.81						
60						− 39.83						

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	in.
Mar. 10	1	Nadir	- -	- - -	199 59 59.3	63.2	68.5	56.5	59.0	50.5			30.8186	
	2				.5	.2	.8	.2	58.8	.8	59.525	30.8110		
	3				.5	.3	.0	.3	59.3	.5				
	4				60.0	.0	.3	.6	.3	.2				
	5	ε Canis Majoris	4	- - -	87 39 60.2	63.5	68.2	56.2	62.0	50.8	60.15	32.8689		29.830
	6	α^2 Geminorum	4	- - -	26 44 60.8	64.6	69.8	58.0	61.9	50.2	60.88	34.8297		.832
	7	β Geminorum	4	- - -	30 29 59.5	63.0	67.9	55.8	62.2	51.0	59.90	30.3898		.832
17	†8	Sun, N. L.	- -	— 27.8	59 44 63.4	64.4	68.9	57.4	60.9	53.5	61.42	28.0530	30.8143	
	†9	Sun, S. L.	- -	+ 38.2	60 19 62.2	62.1	67.5	56.3	59.3	52.1	59.92	30.7253		.888
	10	Nadir	- -	- - -	199 59 60.3	60.9	63.4	56.5	53.7	51.5				
	11				.5	.5	.9	.9	.4	.7	57.867	30.7803		
	12				.3	.7	.9	57.6	.9	.8				
	13				.5	.7	.9	.1	.5	52.2				
19	†14	Nadir	- -	- - -	199 59 59.6	62.4	65.1	59.0	53.6	51.0			30.8083	
	15				.4	.5	.1	.0	.2	.0				
	16				57.9	61.5	64.0	58.1	52.4	50.0	57.578	30.7698		
	17				58.2	.6	63.8	.0	.4	.4				
	18				57.6	.1	63.2	57.4	.1	.1				
	†19				.8	.1	.3	.7	.1	.1				
	†20			— 2 18.0	327 24 59.9	62.5	65.3	57.9	55.5	49.7	58.51	30.478		30.166
	21			1 58.0	60.5	62.1	65.1	58.0	55.4	50.2		.478		.166
	22			1 38.0								.482		
	23			1 18.0								.487		
	24	Polaris, S. P.		— 0 58.0								.488		
	25			+ 0 35.0								.486		
	26			1 32.0								.488		
	27			1 52.0								.483		
	28			2 12.0								.475		
	29			2 32.0								.475		
	†30			2 52.0								.478		
23	†31	Venus, S. L.	- -	17.0	37 44 62.8	60.8	66.6	59.1	57.6	54.1	60.17	34.3257	30.8056	.396
	†32	Venus, N. L.	- -	+ 36.5								34.8392		
	33	Nadir	- -	- - -	199 59 61.6	62.3	66.9	59.4	55.1	53.7				
	34				.4	.2	.9	.6	.2	.9				
	35				.3	.8	.8	60.1	.1	.9	59.912	30.8042		
	36				.1	.8	.7	.0	.1	54.0				
	37	ε Hydræ	4	- - -	51 54 58.9	61.0	63.1	57.7	54.3	51.5	57.75	30.6812		30.376
	38	ε Ursæ Majoris	4	- - -	10 14 60.9	63.0	66.4	59.4	56.5	51.7	59.77	29.8119		.370
	39				60.6	63.3	66.8	59.8	57.0	51.8				
	†40	Jupiter, S. L.	4	- - -	40 59 59.8	61.4	65.0	58.8	54.1	53.6	58.78	32.9973		.366
	†41	Jupiter, N. L.	4	- - -								33.6615		
24	42	Polaris	3	— 10 16.0	330 24 58.0	58.6	66.7	54.8	53.2	49.9	56.87	31.302	30.8139	.236
	43			8 16.0								.322		.224
	44			6 16.0								.282		.218
	45			4 16.0								.311		
	46			2 16 0								.291		
	47		4	— 0 26.0								.290		
	48			+ 1 34.0								.282		
	49			3 34.0								.296		
	50			5 34.0								.299		
	51			7 34.0								.332		
	52		5	+ 9 25.0								.342		
	53	Nadir	- -	- - -	199 59 58.6	57.2	63.2	54.5	51.0	49.9			30.8111	
	54				.6	.5	.3	.0	1.0	.8				
	55				.2	59.0	4.0	.2	3.0	50.5	56.125	30.7494		
	56				.0	.2	.8	.5	3.0	.0				
	57	ε Leonis	4	- - -	34 24 60.0	60.7	65.3	55.8	66.0	51.8	58.27	30.2612	30.8105	.14[illegible]
	58	α Leonis	4	- - -	46 9 60.0	61.3	66.3	55.8	59.3	50.5	58.87	29.6765		.18[illegible]

THERMOMETERS. At	Ex.	St.	Up.	Lo.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
										S.	
			47.5	46.0							
48.5	40.6				− 2 8.79	+ 2 22.55	87 40 14.91	− 28 46 35.66	+ 19.21		
49.2	39.3	50.0	45.0	45.5	− 4 11.96	6.94	26 40 55.86	+ 32 12 43.39	− 0.73		
47.1	39.1				+ 26.94	10.99	30 30 37.83	+ 28 23 1.42	− 0.26		
					2 53.17	41.97	59 48 36.56			C.	8–9. Sun's semi-diam., 16′ 6″.19.
52.2	59.4	50.8	55.0	51.7	6.21	+ 42.82	60 20 48.95	− 1 11 3.51			9. Through clouds, very faint. Mean hour angles of 4 contacts of each limb.
											Mar. 17. Wind fresh; mercury very unsteady.
		50.8	55.5	51.7							
			56.2	51.8							
		52.2	44.0	47.0							14, 19. App. error of coll., 2″ E.
			46.7	48.5							
			48.0	48.8							
											20 to 23. Through mist.
46.0	40.4	52.2	47.5	48.7	20.62						
46.0	40.8				.69						
					.50						
					.24						
					.22						
					.38	− 1 17.94	327 24 1.05	+ 88 30 21.80	+ 14.34		
					.16						
					.41						
					.84						
					.76						
					+ 20.48						
52.0	53.5	49.8	53.8	51.5	− 3 41.10	+ 13.95	37 41 33.02	21 12 23.90			31–32. Venus' semi-diam., 16″.52; applied 1″.26 cor. for defective illumination of N limb Mean hour angles of 2 contacts of each limb.
					− 4 13.36	13.18	37 40 59.99				
		50.2	50.5	50.0							
			52.0	50.5							
50.5	43.0	50.2		48.5	+ 7.81	+ 37.25	51 55 42.81	6 57 56.44	+ 1.11	C.	
50.0	43.0		46.0	47.5	− 1 2.42	− 10.26	10 15 51.93	48 37 47.32	− 11.78		
49.5	42.7		45.0	47.0	− 2 17.67	+ 22.28	40 58 3.39				40–41. Jupiter's semi-diam., 20″.87; 4 observations S. L, 3 of N. L.
					59.39	+ 22.26	40 57 21.65	17 55 56.73			
52.3	58.6	48.0	53.0	52.0	25.25					S.	March 24. No dependence to be placed on Nadir observation; too much moving about grounds.
52.9	58.9				28.41						
53.2	59.2				27.39						
					30.29						
					29.70						
					29.89	− 1 7.68	330 23 20.43	89 30 18.85	+ 15.79		
					29.28						
					29.63						
					28.89						
					29.61						
					− 28.63						
54.2	51.3		53.8	53.0	+ 34.50	+ 15.02	34 25 47.79	24 27 51.46	− 7.39		
54.0	50.1				+ 1 11.23	+ 28.76	46 11 38.86	+ 12 42 0.39	− 5.80		

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
March 24	1	Nadir			199 59 59.3	61.0	64.2	56.7	54.3	51.8				
	2				.3	.0	.8	.9	.3	.9				
	3				.0	.1	.5	57.3	55.3	.9	58.042	30.7793		
	4				.5	.1	.4	56.9	54.8	.9				
29	5	δ Leonis	4		37 29 60.4	60.9	64.2	56.4	57.1	50.9	58.32	28.4061	30.8223	30.054
	† 6	γ Cephei, S. P.		+ 7.9	315 44 60.3	58.5	63.9	55.0	55.5	52.0	57.53	32.7130		.054
	7	Nadir			199 59 61.7	63.8	66.4	60.5	57.1	54.3				
	8				.5	.8	.2	.7	.1	.1				
	9				.5	.9	65.9	.7	.0	.1	60.562	30.8313		
	10				.8	.5	.9	.8	.0	.2				
	11	β Libræ	4		67 39 61.5	62.2	67.4	59.4	58.6	53.9	60.50	28.9925		.026
31	†12	Venus, S. L.	4		35 29 60.6	60.1	61.9	55.8	55.6	53.8	57.97	31.2065	30.8274	29.998
	†13	Venus, N. L.	4									31.7604		
	14	δ Geminorum	4		36 39 60.7	59.1	61.5	54.2	54.1	53.0	57.10	32.4904		.958
	†15	Moon, N. L.		— 1.4	41 4 56.1	56.4	56.0	51.4	49.9	52.6	53.73	29.0132		.958
	16	Geminorum, (2551)	4		34 9 61.5	60.2	62.2	55.7	54.8	55.1	58.25	32.4837		.952
	†17	Nadir			199 59 60.0	57.9	59.9	54.6	50.2	55.2				
	18				59.8	.9	.9	.6	.2	.4				
	19				.8	58.5	.9	55.2	.9	.6	56.467	30.7712		
	†20				.6	.5	.9	.1	.7	.9				
	21	ε Hydræ	4		51 54 61.1	59.1	60.5	55.4	54.1	55.5	57.62	30.6548		.970
	†22	Jupiter, S. L.	4		40 54 59.2	63.8	60.2	57.9	53.0	55.3	58.23	32.2699		.964
	†23	Jupiter, N. L.	4									32.9143		
April 3	†24	Sun, S. L.		— 29.8	53 39 63.7	62.3	66.8	60.1	56.1	54.9	60.65	29.4245	30.8211	
	†25	Sun, N. L.		+ 31.5	53 9 66.5	64.8	68.7	63.1	58.9	57.8	63.30	31.4644		
	26	Nadir			199 59 65.5	62.1	67.9	62.1	55.0	57.3				
	27				.2	.2	.9	.1	.0	.5				
	28				64.8	.6	.9	.1	.0	.9	61.650	30.8314		
	29				.7	.3	.6	.0	.0	.9				
	†30	Venus, N. L.	4		34 49 63.3	60.1	63.8	60.0	52.2	55.4	59.13	32.0946		30.076
	†31	Venus, S. L.	4									31.5146		
5	†32	Nadir			199 59 64.0	61.2	64.1	61.9	51.8	59.9			30.8165	
	33				.0	.2	.1	.9	52.0	60.1				
	34				.1	.8	.3	62.1	.1	.1	60.621	30.8264		
	†35				.0	.8	.2	.0	.1	.1				
	36	ι Ursæ Majoris	4		10 14 60.5	59.1	61.4	58.4	51.9	54.9	57.70	29.8154		30.110
	†37	Jupiter, S. L.	4		40 54 61.1	59.2	62.6	59.0	52.1	58.3	58.72	33.1917		.110
	†38	Jupiter, N. L.	4									33.8268		
	†39	Moon, N. L.		+ 0.3	57 24 62.1	61.9	63.9	62.0	54.1	58.5	60.42	31.9770		.172
	†40	Virginis, (4145)	4		58 44 62.0	62.8	64.9	62.0	55.1	59.0	60.97	33.0680		.176
6	†41	Sun, S. L.		— 31.3	52 34 60.0	58.2	63.2	57.5	50.2	53.2	57.05	32.5112	30.8179	.368
	†42	Sun, N. L.		+ 37.0	52 4 60.8	59.3	64.8	59.6	53.3	54.3	58.68	34.4933		
	43	Nadir			199 59 61.2	57.1	63.3	57.2	49.2	53.3				
	44				60.8	56.8	.8	56.8	.5	.5				
	45				.8	58.2	.3	57.0	.8	.5	57.046	30.7709		
	46				61.0	.2	.8	.0	50.2	.8				
	†47	Jupiter, S. L.	2		40 54 61.0	59.2	65.0	58.0	53.2	56.6	58.83	33.1056	30.8221	.302
	†48	Jupiter, N. L.	6									33.7937		
	49	α Hydræ	4		66 54 59.8	57.8	64.2	56.3	51.2	53.3	57.10	32.3750		.294
	50	ε Leonis	4		34 24 59.5	58.0	62.3	57.0	49.3	52.3	56.40	30.2403		.292
	51	Nadir			199 59 59.8	59.3	63.8	59.6	49.5	54.2				
	52				61.2	.6	64.2	.5	.5	.2				
	53				60.0	.5	63.0	.4	.8	53.8	57.717	30.7858		
	54				.2	60.0	62.5	.2	.7	.5				
7	†55	Sun, S. L.		— 34.2	52 9 61.5	60.7	63.5	60.0	51.9	55.6	58.87	30.1594	30.8040	.168
	†56	Sun, N. L.		+ 28.7	51 39 60.4	59.5	62.4	59.3	51.8	54.9	58.05	32.1429		
	57	Nadir			199 59 61.1	59.3	62.9	59.2	49.8	55.6				
	58				.0	.3	63.0	.5	50.1	.8				
	59				60.6	.7	62.5	.9	49.9	.5	58.050	30.7729		
	60				.7	.9	.5	60.0	.9	.5				

No. for ref.	THERMOMETERS. At.	Ext.	St.	Up.	Low.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
	°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″		
1			51.0	55.0	51.5						S.	
2												
3												
4												March 29. One of wires in Mic F. stranded;
5	51.7	50.9			50.4	+ 2 31.76	+ 18.42	37 32 48.50	+ 21 20 50.75	− 10.60		held tight by a very minute fibre.
6	51.7	50.0		50.7	50.0	− 1 58.75	− 2 0.59	315 40 58.19	+ 76 47 18.94	+ 23.70		6. Mean hour angle of seven bisections each
7			49.2	48.8	48.8							side of the meridian.
8				50.0	50.2							
9												
10												
11	50.2	45.9	49.2	49.5	49.0	+ 1 54.92	+ 1 4.53	67 42 59.95	− 8 49 20.70	− 11.94		
12	61.5	67.5	53.8	63.2	57.0	− 23.81	10.94	35 29 45.10	+ 23 24 12.10			12–13. Venus' semi-diam., 17″.95; applied
13						58.60	9.82	35 29 9.19				1″.10 cor. for defective illumination of N.
14	63.0	63.3	55.0	61.7	57.0	− 1 44.45	+ 16.93	36 38 29.58	22 15 9.67	+ 2.90		limb; 4 observations of S. L., 3 of N. L.
15	62.8	62.5		61.7	57.3	+ 1 54.03	− 4 34.19	41 2 13.57	17 51 25.68			
16	62.8	61.4				− 1 44.03	+ 14.32	34 8 28.54	24 45 10.71	0.05		
17			55.3	61.5	57.0							March 31. 17 to 20. Mercury tremulous; too
18				62.5	57.3							many persons moving about building.
19												15. Mean hour angle of seven observations.
20												
21	61.5	58.6		60.0	57.8	+ 10.85	35.62	51 55 44.09	6 57 55.16	+ 1.11		
22	61.5	60.0		61.0	58.0	− 1 30.60	21.14	40 53 48.77	18 0 10.72			22–23. Jupiter's semi-diam., 20″.24; 4 obser-
23						− 2 11.07	21.13	40 53 8.29				vations of S. L., 3 of N. L.
24						+ 1 27.26	33.49	53 42 1.40	5 27 40.47			24 to 25. Very unsteady; Sun's semi-diam.,
25						− 39.92	32.78	53 9 56.16				16′ 2″.62.
26			54.0	58.2	54.4							Mean hour angle of 4 observations of each limb.
27				59.0	54.2							
28												
29												
30	57.3	66.3		60.7	55.0	1 19.09	9.14	34 48 49.18	24 4 31.73			30–31. Venus' semi-diam., 18″.34; applied
31						− 0 43.56	+ 10.29	34 49 25.86				1″.14 cor. for defective illumination of N. limb; 4 observations of N. limb. 3 of S. limb.
32			59.0	61.8	59.3						C.	April 5 and 7. App. error of coll., 6″ E.
33				62.8	59.5							
34												
35												
36	61.0	51.9	59.0	61.8	59.3	+ 1 2.88	− 9.98	10 15 50.60	48 37 48.65	− 13.42		
37	61.0	52.0		57.5	58.5	− 2 29.19	+ 21.58	40 52 51.01	18 1 8.10			37–38. Very unsteady; 4 observations of S. L.,
38						3 9.09	+ 21.57	40 52 11.10				3 of N. L. Jupiter's semi-diam., 19″.96.
39	55.0	45.7	59.0	54.8	52.5	2 15.75	− 17 49.89	57 5 57.59	1 47 41.66			39. Unsteady; mean hour angles of 7 observ's.
40	54.4	45.4				2 21.41	− 47.36	58 43 26.92	0 10 12.33	− 9.92		40. Very unsteady.
41	52.3	59.3			55.0	1 46.85	+ 32.39	52 33 42.59	6 35 57.90		S.	41–42. Sun's semi-diam., 16′ 1″.25. Mean
42						3 50.28	31.70	52 1 40.10				hour angles of 3 observations of each limb.
43			57.3	63.3	57.0							
44												
45												
46												
47	58.0	53.0		53.8	55.2	2 23.43	21.68	40 52 57.08	+ 18 1 3.79			47–48. Jupiter's semi-diam., 21″.62. Mean
48						3 6.66	21.67	40 52 13.84				of 3 observations of each limb.
49	57.0	51.0				− 1 37.53	1 2.63	66 54 22.20	− 8 0 42.95	+ 1.93		
50	56.2	53.0				+ 36.54	15.03	34 25 47.97	+ 24 27 51.28	− 8.64		
51				55.0								
52												
53												
54												
55	59.2	72.1				+ 39.96	30.78	52 11 9.61	+ 6 58 32.19		C.	55–56. Very unsteady; badly defined. Sun's
56				62.5	58.0	− 1 23.65	+ 30.12	51 39 4.52				semi-diam., 16′ 2″.54. Mean hour angles of
57				62.3	58.0							4 observations of each limb.
58				63.0	58.0							
59												
60												

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B	C.	D	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m s.	° ′ ″	″	″	″	″	″	″	Revs	r.	In.
April 11	† 1	Jupiter, S. L.	2	. . .	40 54 59.0	56.8	61.6	56.4	49.2	55.0	56.33	32.4462	30.8123	30.148
	† 2	Jupiter, N. L.	5½	. . .								33.0932		
	3	Nadir	. .	. . .	199 59 61.3	62.5	65.0	63.8	50.9	55.3				
	4				.5	.6	.2	.8	.4	.6				
	5				60.8	.8	.2	.8	.8	.8	59.825	30.6672		
	6				.9	.5	.4	.5	.6	.8				
12	† 7	Sun, S. L.	. .	— 33.7	50 19 63.5	61.5	66.5	61.4	53.2	58.1	60.70	30.8028	30.6523	.268
	† 8	Sun, N. L.	. .	+ 21.0	49 47 36.8	33.9	38.4	35.6	29.8	30.4	34.15	30.4181		
	9	Nadir	. .	. . .	199 59 62.1	59.1	63.7	60.6	48.7	56.8				
	10				.0	58.8	.6	.8	.5	.5	58.506	30.6284		
	11				.1	.9	.8	.9	49.5	.4				
	12				61.9	59.1	.5	.9	.2	.6				
	†13	Venus, S. L.	4	. . .	33 24 62.8	60.0	64.5	59.9	51.8	56.3	59.22	32.9487		.210
	†14	Venus, N. L.	4	. . .								33.6326		
19	†15		4	. . .	34 54 56.3	57.9	61.5	55.2	47.4	47.2	54.25	38.4063	30.8026	29.816
	16		3									34.1714		
	17	B. Z., 412, 151	4									28.5875		
	18		3									27.6634		
	†19	B. Z, 412	5									38.6154		
	20	Nadir	. .	. . .	199 59 58.2	60.1	63.9	60.0	47.8	51.6				
	21				.2	.1	.5	.0	.8	.8	57.008	30.7550		
	22				.6	.4	.7	.1	48.0	.9				
	23				.6	.2	.9	.1	47.9	.8				
20	24	α Leonis	4	. . .	46 9 60.8	60.0	65.8	56.3	53.2	50.9	57.83	30.6807	30.8078	29.992
	25	Nadir	. .	. . .	199 59 60.0	59.8	65.4	57.8	50.7	51.4				
	26				59.8	.8	.8	.8	.4	.8	57.555	30.7688		
	27				.8	60.2	.3	.9	.5	.8				
	28				60.0	.2	.3	.9	.0	.8				
	†29	B. Z, 412	5	. . .	36 9 60.8	61.0	67.0	59.5	52.3	51.3	58.65	48.7649		
	†30		4	. . .	35 9 60.8	60.8	67.2	58.5	51.9	50.0	58.20	52.8188		30.052
	†31	B. Z., 412	2									24.0106		
	†32	B. Z., 412	5									27.3650		
30	†33		4	. . .	62 64 57.8	54.2	58.8	52.5	45.5	48.8	52.93	17.4251	30.8074	.062
	†34		2									33.0406		
	†35		2									15.2929		
	†36	Weisse X, 801	3	. . .	59 39 57.2	54.9	60.5	53.8	45.5	51.2	53.85	33.2703		
	†37		4									43.8844		
	†38	Weisse X, 859	3									34.4967		.060
	†39		4									39.9288		
	†40	Lalande, (21026)	4									28.8609		
	41	β Leonis	4	. . .	43 29 59.0	56.0	60.5	53.9	45.8	51.0	54.37	32.2501		.062
	42	β Corvi	4	. . .	81 19 56.8	57.2	60.0	54.0	45.8	49.0	53.80	25.1270		.060
	43			— 9 15.8	327 24 56.5	56.3	60.8	53.8	45.8	49.3		30.592	30.8086	.060
	44			7 15.8								.618		
	45			5 15.8								.630		
	46			3 15.8								.643		
	47			— 1 15.8								.651		
	48	Polaris, S. P.	4	+ 0 33.2							53.71	.656		.060
	49			2 33.2								.656		
	50			4 33.2								.642		
	51			6 33.2								.602		
	52			8 33.2								.600		
	53			+ 10 18.2	327 24 57.0	54.9	61.0	53.9	46.0	49.2		.580		.062
	54	α Bootis		. . .	38 54 59.3	57.2	63.0	56.8	49.7	53.0	56.50	30.6061	30.8074	.060
	55	Nadir	. .	. . .	199 59 60.0	59.0	63.0	59.2	47.2	53.5				
	56				.0	.0	63.2	.4	.2	54.0	57.000	30.7596		
	57				.0	58.9	62.8	.3	.3	53.2				
	58				58.8	59.2	63.2	.5	.3	.8				
	59	ε Bootis	4	. . .	31 9 58.3	56.5	62.0	55.8	47.8	51.7	55.35	30.0745		.054
	60	β Ursæ Minoris	4½	. . .	314 9 60.0	58.9	66.0	57.3	49.9	52.9	57.50	32.6936		.048

THERMOMETERS. At.	Ext.	St.	Up.	Low.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″		
60.5	55.8	60.0	58.5	60.0	− 1 42.78	+ 21.47	40 53 35.02	+ 18 0 24.42		S.	1-2. Jupiter's semi-diam., 20″.19; 3 observations of S L., 4 of N. L.
					2 23.15	21.46	40 52 54.64				April 11. Applied cor. + 0r.1423 to reduce wire 4 to wire 3, and + .0028 for cor. of Mic. head.
60.2	61.5				− 9.96	29.27	50 20 20.01	8 49 20.34			7-8. Unsteady; Sun's semi-diam, 16′ 1″.09. Mean hour angles of 3 observations of each limb.
	62.5	58.5	62.0	59.2	+ 15.03	28.64	49 48 17.82				
		58.5	62.7	59.0							
			62.8	59.0							
61.5	66.4		63.0	64.0	− 2 24.22	8.64	33 22 43.64	25 31 17.79			13-14. Unsteady; Venus' semi-diam., 22″.18; 4 observations of S. L, 3 of N. L.
					3 7.20	7.25	33 21 59.27				
46.0	42.5		46.0	47.5	7 57.57	15.53	34 47 12.21	24 6 27.04	− 13.05		15 to 19. Stars in vicinity of comet.
											h. m. s.
					− 3 31.59	15.61	34 51 38.27	24 2 0.98	12.94		15. App. A.R. 13 50 22 (Mag. 9.)
					+ 2 19.13	15.71	34 57 29.09	23 56 10.16	12.88		16. 52 58 1850 (Mag. 9.)
					+ 3 17.16	15.73	34 58 27.14	23 55 12.11	12.72		17. 24 31 (Mag. 10.)
					− 8 10.70	15.52	34 46 59.07	24 6 40.18	12.71		18. 59 (Mag. 10, 11.)
		49	47.2	48.3							19. 59 52 (Mag. 9.)
			47.5	48.0							
51.2	45.8	50.0	49.0	50.5	+ 1 10.79	28.88	46 11 37.50	12 42 1.75	7.38	S.	
			51.8	50.0							
											h. m. s.
					−18 47.86	17.05	35 51 27.84	23 2 11.41	13.43		29. App. A. R. 13 41 58.
46.0	36.2				−23 2.48	15.83	34 47 11.55	24 6 27.70	13.29		30. 13 50 19. (Mag. 9.)
											31. 52 9. (Mag. 9.)
					+ 7 6.92	16.41	35 17 21.53	23 36 17.72	13.31		32. 52 41. (Mag. 9.)
					3 36.24	16.34	35 13 50.78	+ 23 39 48.47	13.17		
62.0	59.1	60.0	61.5	61.5	+14 0.52	53.37	62 59 46.82	− 4 6 7.57	4.16	S.	29 to 32. Stars from Zone Book.
					− 2 20.26	52.86	62 43 25.53	3 49 46.28	4.36		33 to 40. Do.
					+16 14.44	53.44	63 2 0.81	4 8 21.56	4.32		
											h. m. s.
					− 2 34.69	47.47	59 38 6.63	0 44 27.38	6.34		33. App. A. R. 10 26 19 (Mag. 9.)
					13 41.34	47.16	59 26 59.67	0 33 20.42	6.45		34. 28 8 (Mag. 9.)
61.9	58.5		60.5	61.3	3 51.72	47.44	59 36 49.57	0 43 10.32	6.45		35. 28 53 (Mag 8.) Mic. w. 2 red.: r. +0.0998
					− 9 32.90	47.28	59 31 8.23	0 37 28.98	6.51		36. 45 0 (Mag. 8.9.) Mic. w. 4 red.: +0.1512
					+ 2 2.25	47.60	59 42 43.70	0 49 4.45	6.51		37. 46 0 (Mag. 8, 9.)
											38. 46 53 (Mag. 7.)
											39. 10 47 35 (Mag. 8, 9.)
											40. 48 25 (Mag. 6.)
60.8	56.8	60.0	60.0	60.5	− 1 30.61	25.00	43 28 48.76	+ 15 24 50.49	13.55		
60.0	56.2				+ 5 56.78	+ 1 45.44	81 27 36.02	− 22 33 56.77	− 7.14		
59.8	56.2		59.2	60.0	9.20						
					9.27						
					9.81						
					9.86						
					9.80						
59.8	56.3				9.57	− 1 15.20	327 23 48.07	+ 88 30 8.82	+ 27.04		
					9.26						
					9.40						
					10.76						
					9.35						
59.5	56.3		59.5	60.0	8.92						
58.8	54.3			58.0	12.64	+ 19.83	38 55 28.97	19 58 10.28	− 15.20		
		60.0	58.3	58.5							
58.8	53.8				+ 46.03	+ 11.45	31 10 52.83	27 42 46.42	13.18		
58.2	54.2				− 1 58.43	− 41.81	344 7 17.26	+ 74 46 21.99	− 16.36		

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
April 30	1	β Libræ	4	. . .	67 39 60.0	59.2	65.2	59.2	49.3	53.8	57.78	28.8823		29.042
May 2	† 2	Weisse X, 456	6	. . .	62 39 60.0	55.8	58.8	52.2	45.1	51.2	53.85	46.9924	30.7736	.418
	† 3	Weisse X, 517	4									15.4872		
	† 4	Weisse X, 637	4									40.1337		
	† 5	Weisse X, 801	6	. . .	59 39 57.5	54.6	58.9	51.3	45.2	51.0	53.08	33.1877		.422
	† 6	Weisse X, 859	4									34.4776		
	† 7	Lalande, (21026)	4									28.8329		
	† 8	γ Cephei, S. P.	3½	— 33.3	315 39 58.2	50.5	57.8	49.3	42.9	49.3	51.33	27.8975		.436
	9	β Corvi	4	. . .	81 19 59.8	58.2	61.8	55.3	46.3	52.5	55.65	25.2226		.418
	†10	Bes. Z., 460	4	. . .	36 14 59.3	56.2	61.2	55.8	45.2	51.0	54.78	25.2485		.432
	†11		4									38.4665		
	†12		4									35.0515		
	†13	Bes. Z., 412	4	. . .	34 54 59.5	57.8	62.2	55.2	45.8	52.2	55.45	34.1901		.442
	†14	Anon.	4									28.6016		
	†15	Bes. Z., 412	5									38.6156		
	16			— 9 33.0	327 14 59.5	56.0	61.9	54.8	46.0	51.3		30.561	30.7752	30.424
	17			7 33.0								.592		
	18			5 33.0								.602		
	19			3 33.0								.632		
	20			— 1 33.0								.642		
	21	Polaris, S. P.	4	+ 0 23.0							54.808	.658		.422
	22			2 23.0								.641		
	23			4 23.0								.628		
	24			6 23.0								.610		
	25			8 23.0								.595		
	26			+ 10 3.0	327 24 59.0	56.0	61.8	54.8	45.3	51.3		30.563		.423
	27	Nadir	. .		199 59 60.0	60.8	63.8	61.5	45.2	53.8			30.7736	
	28				.0	61.2	.8	.3	.5	54.3				
	29				59.3	60.8	.2	.2	.3	53.8	57.446	30.7331		
	30				.5	61.0	.8	.2	.8	.8				
3	†31	Sun, N. L.	. .	— 33.3	42 49 60.8	59.4	62.4	58.1	47.4	53.1	56.87	30.3335	30.7762	
	†32	Sun, S. L.	. .	+ 41.8	43 19 62.7	60.1	62.6	58.1	47.6	54.2	57.55	28.6251		.472
	33	Nadir	. .	. . .	199 59 64.6	61.0	64.8	62.2	48.0	58.7				
	34				.5	60.9	.9	.0	47.8	.6				
	35				.9	61.2	65.1	.7	.5	.8	59.933	30.7751		
	36				.8	.1	.1	.6	.8	.8				
	†37	Venus, S. L.	4	. . .	34 29 63.8	61.8	65.8	61.6	50.1	57.1	60.03	30.7367		.456
	†38	Venus, N. L.	4	. . .	. . .	--	--	--	--	--	. .	31.5803	30.7755	
9	39	Nadir	. .	. . .	199 59 60.8	58.3	60.1	59.2	45.0	56.0				
	40				.9	.0	.3	.2	44.8	.0				
					.8	.3	59.9	.2	45.0	.0	56.550	30.7205		
	41													
	42				.8	.3	.9	.1	.0	.3				
	43			— 8 23.0	327 24 58.3	53.5	58.2	54.5	43.2	49.9		30.605	30.7767	29.992
	44			6 23.0								.622		
	45			4 23.0								.632		
	46			— 2 23.0								.655		
	47	Polaris, S. P.	4	+ 0 17.0								.645		30.000
	48			2 17.0							52.94	.652		
	49			4 17.0								.632		
	50			6 17.0								.627		
	51			8 17.0								.602		
	52			+ 10 5.0	327 24 58.2	53.6	58.1	54.8	43.0	50.0		.580		29.996
11	53	β Corvi	4	. . .	81 29 59.5	57.9	59.5	57.2	43.4	52.3	54.97	25.1160	30.7432	.843
	54			— 9 31.0	327 24 59.2	56.0	60.2	56.1	43.6	50.4		30.585	30.7445	.840
	55			7 31.0								.600		
	56			5 31.0								.616		
	57			3 31.0								.625		
	58	Polaris, S. P.	4	— 1 31.0								.648		
	59			+ 0 18.0							54.241	.670		.836
	60			+ 2 18.0								.668		

THERMOMETERS. At.	Ext.	St.	Up.	Low.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	° ′ ″		
58.0	53.3		56.0	57.8	+ 2 0.91	+ 1 3.60	67 43 2.29	− 8 49 23.04	− 11.52	S.	
65.2	58.8				−16 58.67	52.90	62 23 48.08	3 30 8.83	4.46	S.	*2 to 7 and 10 to 15 from Zone Book.*
					+16 0.11	53.88	*62 56 47.84	4 3 8.59	4.47		h. m. s.
					− 9 47.90	53.12	62 30 59.07	3 37 19.82	5.02		2. App. A. R. 10 25 59 (Mag. 9.) Mic.w. 4, red.=+0r.1323
65.0	58.0	62.0	64.0	64.0	2 31.64	48.06	59 38 9.50	0 44 30.25	6.48		3. 28 52 (Mag. 7.) Mic.w. 2, red.=+0 .0950
											4. 35 25 (Mag. 8.)
											5. 45 0 (Mag. 9.)
					− 3 52.64	48.04	59 36 48.48	0 43 9.23	6.60		6. 46 52.5 (Mag. 9.)
					+ 2 1.89	+ 48.21	59 42 43.18	− 0 49 3.93	− 6.66		7. 10 48 25 (Mag. 7.)
65.0	56.2			63.8	3 0.64	− 2 0.53	315 40 51.44	+ 76 47 12.19	+ 31.61		10. 13 38 15.5
61.8	56.3	63.9	58.9	62.0	5 48.65	+ 1 46.66	81 27 30.96	− 22 33 51.71	− 7.06		11. 41 31
59.0	53.4				+ 5 47.02	17.21	36 20 59.01	+ 22 32 40.24	15.50		12. 43 14
											13. 51 55.5
											14. 54 29.5
											15. 13 59 20.5
					− 8 3.18	16.95	36 7 8.55	22 46 30.70	15.44		8. Mean hour angle of 6 observations.
					4 28.69	17.02	36 10 43.11	22 42 56.14	15.38		
58.0	52.6				− 3 34.58	15.60	34 51 36.47	24 2 2.78	15.27		
					+ 2 16.42	15.70	34 57 27.57	23 56 11.68	15.21		
					− 8 12.54	+ 15.51	34 46 58.42	+ 24 6 40.83	− 15.05		
61.0	54.3		58.8	61.5	+ 8.76						
					8.57						
					9.30						
					8.36						
					8.25						
60.0	54.4				7.35	− 1 16.41	327 23 46.68	+ 88 30 7.43	+ 27.61		
					8.13						
					8.26						
					8.29						
					7.71						
60.0	53.8		58.0	61.5	8.15						
			56.8	58.5							
	70.9				27.41	+ 20.63	42 50 44.91	15 46 59.63		C.	31–32. Sun's semi-diam, 15′ 54″.71. Mean hour angles of 4 observations of each limb. May 3. App. error of col., 7″ E.
63.0	72.0	62.0	66.0	62.8	2 15.61	21.18	43 22 34.34				
		62.0	66.2	62.7							
			66.5	62.5							
64.2	69.8		66.7	63.5	+ 2.48	7.66	34 30 10.17	24 23 57.84			37–38. Venus' semi-diam., 28″.76. Applied 4″.51 for def. illumination of N. limb. 4 observations of S. limb, 3 of N. limb.
					− 50.51	3.13	34 29 12.65				
			68.2	65.0						S.	
63.0	55.8				+ 7.18						
					7.63						
					8.11						
					7.36						
62.3	55.9	63.0	60.5		8.26	− 1 15.03	327 23 45.53	+ 88 30 6.28	+ 29.47		
					7.56						
					8.15						
					7.37						
					7.45						
62.0	57.2		62.0		7.14						
60.2	52.2				5 53.43	+ 1 45.50	81 27 33.90	− 22 33 54.65	− 6.57		
59.3	51.2				5.37	− 1 15.38	327 23 44.23				
					6.17	.38	45.03				
					6.51	.39	45.36				
					6.87	.40	45.71				
					5.95	.41	44.78				
58.7	50.9	62.0	58.5	60.0	4.67	.42	43.49	+ 88 30 5.16	+ 29.87		
					+ 4.52	− .44	43.32				

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
May 11	1	Polaris, S. P.		— 4 18.0								30.638		
	2			6 18.0								.622		
	3			8 18.0								.603		
	4			10 1.0	327 24 59.2	55.8	59.8	56.2	43.8	50.6		.585		29.840
	5	Nadir			199 59 59.6	58.9	61.2	62.2	43.2	53.5			30.7432	
	6				60.0	.9	.3	.2	.2	.5	56.466	30.6869		
	7				59.5	59.0	.2	61.8	.3	54.6				
	8				.5	.5	.0	.5	.2	.0				
14	9		2	— 9 40.0	327 24 60.1	55.6	61.2	55.2	45.6	50.6		30.635	30.7800	29.762
	10			7 40.0								.668		
	11			5 40.0								.682		
	12			3 40.0								.692		
	13			1 40.0								.712		
	14	Polaris, S. P.	4	+ 0 11.0							54.725	.712		.752
	15			2 11.0								.708		
	16			4 11.0								.708		
	17			6 11.0								.688		
	18			8 11.0								.668		
	19		6	+ 9 55.0	327 24 59.8	55.8	61.2	55.8	45.0	50.8		.648		.744
	20	η Ursæ Majoris	4	- - -	8 49 59.8	58.0	62.0	57.2	46.1	53.2	56.05	31.0675	30.7797	.744
	21	α Bootis	4	- - -	38 54 59.8	57.8	61.2	57.9	46.3	54.3	56.22	30.6245		.746
	22	β Ursæ Minoris	4	- - -	344 9 59.8	56.2	61.5	55.9	44.8	50.9	54.85	32.7105		.748
	23	β Libræ	4	- - -	67 39 59.8	58.0	63.2	58.8	45.2	54.0	56.50	28.8486		.748
	24	α Coronæ Borealis	4	- - -	31 39 58.9	57.0	60.6	56.8	44.3	52.7	55.05	30.8164		.750
	25	β Scorpii	4	- - -	78 14 58.5	58.8	63.2	58.9	46.0	52.0	56.40	30.4060		.750
	26	δ Ophiuchi	4	- - -	62 9 59.5	57.8	61.5	58.0	44.4	52.8	55.67	29.8955		.752
	27	Nadir		- - -	199 59 59.8	58.8	62.1	61.0	44.1	54.8				
	28				.8	59.0	.3	60.5	43.8	.8				
	29				60.0	.2	61.8	61.2	44.8	.8	56.850	30.7299		
	30				59.8	.6	.9	.1	.6	.8				
17	†31	Sun, S. L.	- -	— 34.2	39 44 63.1	59.2	61.8	60.6	46.4	58.1	58.20	31.2045	30.7389	30.070
	†32	Sun, N. L.	- -	+ 35.3	39 9 63.7	61.5	63.5	62.2	48.7	58.7	59.72	28.0386		
	33	Nadir	- -	- - -	199 59 64.1	60.7	64.0	62.4	45.9	59.2				
	34				.4	60.4	63.9	.7	46.1	.4				
	35				.5	61.0	64.1	62.9	.1	.7	59.575	30.7321		
	36				.4	.1	63.9	63.1	.1	.7				
18	37	ζ Ursæ Minoris	4	- - -	340 39 58.3	55.8	60.8	58.5	43.0	52.8	54.87	31.7894	30.8953	.060
	38	β^1 Scorpii	4	- - -	78 14 57.5	57.0	60.0	58.2	42.9	51.8	54.57	30.5178		.060
	39	α Scorpii	4	- - -	84 59 56.0	56.8	60.5	59.8	43.3	52.8	54.53	33.3365		.060
	40	Nadir	- -	- - -	199 59 61.3	59.0	61.6	63.2	42.5	55.8				
	41				.0	.3	.8	62.9	.6	56.2	57.379	30.8536		
	42				.0	.8	62.0	.9	.8	.2				
	43				.0	.0	61.8	63.2	.8	.6				
	†44	Venus, S. L.	4	- - -	40 4 62.6	60.6	62.2	61.2	46.1	57.3	58.33	32.0237	30.8872	.210
	†45	Venus, N. L.	4	- - -								32.9450		
19	46	Nadir	- -	- - -	199 59 62.5	57.1	61.9	60.0	42.5	57.5			30.8872	
	47				.7	.0	.8	.0	.5	.5				
	48				.4	.6	.7	.2	.7	.8	57.000	30.8394		
	49				.6	.5	.6	.4	.7	.8				
	50	Nadir	- -	- - -	199 59 64.1	60.5	62.9	63.1	43.9	59.0			30.8872	
	51				.0	.3	.8	.1	.9	.2	58.917	30.8700		
	52				63.9	.5	.8	.2	.9	.2				
	53				.7	.5	.9	.4	.8	.4				
	54	α Coronæ Borealis	4	- - -	31 39 64.0	60.0	62.3	60.9	44.7	58.9	58.47	31.0158		.187
	55	α Serpentis	4	- - -	51 59 64.6	60.8	62.9	63.1	46.0	59.1	59.42	32.0662		.186
June 4	56	α Virginis	4	- - -	69 14 58.0	55.2	56.7	53.5	43.2	53.0	53.27	30.6208	30.7187	29.882
	57	Nadir	- -	- - -	199 59 56.9	54.3	56.3	54.2	41.3	53.7				
	58				.8	.8	.6	.0	.5	.8				
	59				57.0	.0	.0	.2	42.0	.5	52.845	30.6048		
	60				.0	.5	55.8	.2	.0	.9				

THERMOMETERS					CORRECTIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
At.	Ext.	St.	Up	Low.	Inst.	Object.					
°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″		
					+ 5.74	− 1 15.46	327 23 44.52			S.	
					5.65	.48	44.41				
					5.35	.51	44.08				
57.9	50.1				4.87	.54	43.57				
			55.3	57.0							
61.8	57.3		62.5	62.5	4.31	1 14.28	327 23 44.75			S.	
					4.01	.28	44.45				
					4.51	.28	44.95				
					4.84	.28	45.28				
					4.13	.28	44.57				
61.3	57.2	61.3	60.5	61.0	4.27	.28	44.72	+ 88 30 5.26	+ 30.70		
					4.27	.27	44.73				
					3.62	.27	44.08				
					3.82	.27	44.28				
					3.60	.26	44.07				
60.8	57.2				+ 3.25	.26	43.72				
60.2	54.8				− 18.08	− 11.20	8 49 26.67	50 4 12.58	− 22.75		
60.2	51.5				+ 9.75	+ 19.62	38.55 25.59	19 58 13.60	17.51		
59.5	53.2				− 2 1.27	− 41.47	344 7 12.11	+ 74 46 27.14	20.88		
59.5	52.2		57.2	60.0	+ 2 1.29	+ 1 3.10	67 43 0.89	− 8 49 21.64	11.91		
59.0	51.9				− 2.30	11.90	31 40 4.65	+ 27 13 34.60	13.08		
59.0	52.2				+ 23.47	1 32.66	78 16 52.53	− 19 23 13.28	11.42		
58.5	52.2				+ 55.53	52.06	62 11 43.26	− 3 18 4.01	10.62		
			57.2	59.5							
65.0	66.4				− 29.56	17.45	39 44 46.09	+ 19 24 42.91		C.	May 17 to 19. App. error of col., 10″ E.
	67.0	62.2	67.0	63.5	+ 2 49.91	+ 16.93	39 13 6.59				27–28. Unsteady; Sun's semi-diam., 15′49″.75. Mean hour angles of 4 observations of each limb.
		62.2	67.7	63.5							
			68.0	63.8							
57.2	51.0				− 56.15	− 47.72	340 38 11.00	+ 78 15 28.25	15.90	S.	
57.2	52.0				+ 23.71	+ 1 33.67	78 16 51.95	− 19 23 12.70	11.36		
56.8	50.5				− 2 52.17	2 4.11	84 59 6.47	− 26 5 27.22	11.42		
		63.3	61.5	60.5							
64.8	68.5	62.2	67.4	63.5	1 11.38	10.96	40 3 57.91	+ 18 50 10.37		C.	40–41. Venus' semi-diam., 29″.03; cusps indefinite; S. cusp imperfect; applied + 0″.17 cor. for def. illumination of S. Limb; 4 observations of S. L., 3 of N. L.
					2 9.26	10.77	2 59.84				
		62.2	69.0	63.8							May 18. Some inclination of wires; Nadir pt. changed; wire 3 has been disturbed.
			70.0	64.0							May 20 to June 21. Removed diaphragm and put in a new set of wires; on fixed diaphragm five vertical and one horizontal wire; on Mic. diaphragm five horizontal wires, which are 5, 10, 10, 5 revs., respectively, apart.
		64.0	62.0	62.5							
			63.0	62.8							
62.8	55.3	64.0	62.0	62.8	8.08	11.97	31 40 2.36	27 13 36.89	14.28		
62.8	55.2		60.2	62.5	− 1 14.05	36.19	51 59 21.56	+ 6 54 17.69	12.35		
78.2	76.9	73.2	78.0	75.0	+ 6.15	+ 1 3.75	69 16 3.17	− 10 22 23.92	− 11.58		June 2. Lowered circle end of axis slightly; adjusted eye piece and wires.
			75.0	74.5						S.	
			76.[illegible]	74.5							

DATE.	No. for ref.	OBJECTS OBSERVED.	Wire obs'd.	Hour angles.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
June 4	1	η Ursæ Majoris	4	. . .	8 49 56.3	53.3	55.3	50.7	42.0	51.0	51.43	31.0022	30.7187	29.890
	2	α Bootis	4	. . .	38 54 57.0	52.2	54.0	50.1	43.0	51.8	51.35	30.5405		.894
	3	α² Libræ	4	. . .	74 19 58.3	54.9	58.3	54.0	43.8	52.6	53.65	30.4009		.902
	4	β Libræ	4	. . .	67 39 60.8	57.0	60.0	56.3	45.3	55.6	55.83	28.7674		.902
	5	α Coronæ Borealis	4	. . .	31 39 62.5	57.3	59.0	55.0	46.0	56.6	56.07	30.8455	30.7187	.904
	† 6	Moon		— 1.4	75 44 57.5	55.3	58.8	53.2	44.0	51.3	53.35	27.5466		.916
5	7	α Bootis	4	. . .	38 54 64.1	60.5	62.6	60.8	49.5	50.9	59.57	30.6739	30.7116	30.106
	8	Nadir		. . .	199 59 63.9	61.9	64.3	64.6	47.3	60.2				
	9			. . .	64.1	.9	.5	.5	.3	.2				
	10			. . .	.2	62.6	.5	.7	48.1	.2	60.550	30.7204		
	11			. . .	.1	.8	.6	.7	47.9	.1				
	12	ε Bootis	4	. . .	31 9 65.1	61.6	63.9	63.2	49.9	60.8	60.75	30.1794		.104
	†13	β Ursæ Minoris		+ 11.6	344 4 65.7	61.8	66.5	.8	50.5	60.5	61.37	28.0632		.090
	14			. . .	65.5	62.0	.2	.3	.1	60.5				
	15	β Libræ	4	. . .	67 39 64.9	61.2	65.2	.9	49.4	60.5	60.85	28.8433		.094
11	†16	ε Bootis	4	. . .	31 9 59.9	57.0	60.5	57.2	45.0	53.0	55.43	30.0905	30.7147	.326
	17	β Ursæ Minoris	4	. . .	334 9 60.2	55.8	62.5	57.1	43.9	53.0	55.42	32.8240		.322
	†18	β Libræ	4	. . .	67 39 60.1	58.3	62.3	61.2	44.3	54.2	56.73	28.8135		.318
	19	α Coronæ Borealis	4	. . .	31 39 60.3	57.2	60.8	56.9	44.6	52.3	55.35	30.8483		.318
	20	α Serpentis	4	. . .	51 59 60.3	59.3	61.6	59.6	45.9	54.6	56.88	31.8924		.320
	21	β Scorpii	4	. . .	78 14 60.0	59.2	63.1	60.3	45.3	53.0	56.82	30.3607		.319
	22	δ Ophiuchi	4	. . .	62 4 60.0	59.3	61.8	60.0	43.9	53.0	56.33	25.1388		.320
	23	Nadir	4	. . .	199 59 59.5	58.9	62.0	61.3	43.9	53.3				
	24			. . .	.4	59.0	61.8	.3	.6	54.0				
	25			. . .	60.0	.2	62.2	.5	.8	53.8	56.629	30.6610		
	26			. . .	.2	.3	60.0	.3	.8	54.0				
	27	α Scorpii	4	. . .	84 59 60.0	60.3	65.5	61.3	47.3	53.0	57.90	33.4817		.314
16	†28	β Libræ	4	. . .	67 39 61.0	57.2	62.5	55.8	61.0	54.2	58.62	28.8149	30.6722	.120
	29	Nadir		. . .	199 59 61.4	59.2	63.1	59.8	60.2	56.4				
	30			. . .	.4	.3	.1	.9	59.9	.5				
	31			. . .	60.9	.0	.1	58.9	60.2	.5	59.908	30.6707		
	32			. . .	.9	.4	.1	59.2	.0	.4				
18	33	Nadir		. . .	199 59 62.1	58.9	63.5	60.0	58.8	56.5			30.6655	
	34			. . .	.3	.9	.6	.0	.9	.6				
	35			. . .	.5	59.1	64.0	59.8	.8	.7	60.075	30.6667		
	36			. . .	.3	58.8	.1	60.0	.9	.7				
	37	ζ Aquilæ	4	. . .	45 14 63.0	59.4	65.6	58.1	60.9	55.0	60.33	31.1752		.332
19	†38	Sun, S. L.		— 26.5	35 44 62.8	60.0	63.8	59.5	60.0	54.0	60.02	32.9728	30.6633	.296
	†39	Sun, N. L.		+ 26.5	35 14 63.5	60.2	65.0	57.9	60.2	56.5	60.55	34.4784		
	40	Nadir		. . .	199 59 58.9	51.0	58.3	52.5	52.9	52.0				
	41			. . .	.9	.0	.5	.0	.5	.0	54.312	30.5728		
	42			. . .	.8	.3	.8	.5	.8	.0				
	43			. . .	.5	.3	.8	.0	.8	.3				
20	44	Libræ, (4894)	4	. . .	74 14 61.1	54.1	59.2	57.9	57.0	56.4	57.62	31.2241	30.6632	.168
	45	α² Libræ	4	. . .								28.6378		
	46	β Libræ	4	. . .	67 42 34.8	28.6	32.5	31.5	33.0	31.3	31.95	31.2139		.180
	47	Nadir		. . .	199 57 36.9	27.4	32.1	31.7	30.4	31.8				
	48			. . .	.4	28.7	33.8	33.8	32.8	33.8	32.421	28.3143		
	49			. . .	35.0	.1	32.7	31.9	31.6	32.0				
	50			. . .	36.6	.9	33.3	33.2	33.6	33.6				
	51			. . .	200 2 34.1	27.5	32.9	32.5	31.9	32.7				
	52			. . .	36.5	28.9	33.1	33.9	33.4	34.1	32.850	33.0960		
	†53			. . .	34.2	28.9	.0	32.9	33.2	32.1				
	54			. . .	36.4	29.9	.9	34.0	34.7	33.7				
21	†55	Sun, N. L.	2½	— 27.5	35 19 59.0	54.2	56.9	54.6	55.0	55.0	55.78	39.8998	30.6563	30.218
	†56	Sun, S. L.	6	+ 31.0	35 44 51.0	46.8	48.0	47.9	48.3	47.5	48.25	33.5020		
	57	Nadir		. . .	199 59 60.2	49.4	56.8	52.3	51.6	56.0				
	58				.5	.8	.8	.5	.8	.2				
	59				59.9	50.2	.2	53.3	52.3	55.4	54.504	30.5688		
	60				60.0	51.0	.0	.3	51.8	56.0				

THERMOMETERS. At	Ex.	St.	Up.	Low.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	Remarks.
°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
78.0	75.2	69.0	78.0	75.5	− 17.82	− 10.91	8 49 22.70	+ 50 4 16.55	− 27.63	S.	
77.5	73.9				+ 11.19	+ 18.97	38 55 21.51	+ 19 58 17.74	21.01		
76.9	73.5		76.8	74.8	− 2 48.58	1 16.89	74 18 21.96	− 15 24 42.71	11.80		
76.8	72.8		76.0	74.5	+ 2 2.63	1 0.89	67 42 59.35	− 8 49 20.10	12.93		
76.3	72.3				− 7.97	+ 11.47	31 39 59.57	+ 27 13 39.68	17.93	S.	6. Mean hour angle of 5 observations.
75.8	72.8		76.8	74.5	+ 3 19.48	− 28 25.98	75 19 46.85	− 16 26 7.60			
74.2	66.8	75.0	71.8	73.4	2.36	+ 19.37	38 55 21.30	+ 19 58 17.95	21.15	C.	
		75.0	69.5	71.8							June 5. App. error of col., 20″ W.
											13. Mean hour angle of 8 bisections.
			71.0	71.8							
73.5	65.4		70.2	72.0	33.45	+ 11.20	31 10 45.40	27 42 53.85	20.82		16. Very unsteady, haze.
72.5	63.9				2 46.45	− 41.05	344 7 6.77	+ 74 46 32.48	27.18		
											18. Nearly obscured.
72.0	63.8		69.0	71.0	1 57.43	+ 1 2.36	67 43 0.63	− 8 49 21.38	12.98		
68.0	59.3		63.5	66.0	+ 39.23	+ 11.42	31 10 46.08	+ 27 42 53.17	21.78	S.	
67.2	58.0		63.0	65.8	− 2 12.58	− 41.86	344 7 0.98	+ 74 46 38.27	28.47		
66.3	58.8				+ 1 59.49	+ 1 3.46	67 42 59.68	− 8 49 20.43	13.13		
65.8	58.5		63.0	65.5	− 8.39	11.94	31 39 58.90	+ 27 13 40.35	19.25		
65.3	58.2				− 1 14.01	36.13	51 59 19.00	+ 6 54 20.25	15.35		
65.0	57.8				+ 22.25	1 33.40	78 16 52.47	− 19 23 13.22	11.15		
64.9	57.5		61.5	63.6	+ 5 50.40	52.49	62 11 39.22	3 17 59 97	13.00		
		70.0	62.0	64.0							
			66.0	66.3							
64.5	57.3				− 2 53.90	2 3.41	84 59 7.41	26 5 28.16	10.39		
76.0	67.1	73.0	71.5	72.3	+ 1 56.73	1 2.00	67 42 57.35	− 8 49 18.10	13.47	C.	
		73.0	70.0	70.5							June 16. App. error of col., 20″ W.
											28. Very unsteady.
											Before observing increased reading of Mic. E. 15″.
			71.5	71.5							June 17. Adjusted collimation.
		74.5	70.0	72.0							June 18. Corrected loss of motion of tel. Mic. (nearly.)
			71.5	72.5							38–39. Sun's semi-diam., 15′ 47″. 35.
71.0	63.9	74.5	70.0	71.0	− 32.03	27.00	45 14 55.30	+ 13 38 43.95	3.74	S.	Bar. and ex. ther. from meteorological register.
73.5	67.0	72.0	80.5	73.5	2 25.15	13.74	35 42 48.61 }	+ 23 26 37.99			Mean hour angles of 2 observations of each limb.
			80.0	75.0	3 59.78	13.14	35 11 13.91 }				
				74.0							
81.4	80.6	76.2	82.2	78.0	− 35.25	1 16.45	74 15 38.82	− 15 21 59.57	12.08	C.	
					+ 2 7.29	1 16.58	74 18 21.49	15 24 42.24	12.05		
81.5	77.8		81.8	78.0	− 34.61	1 0.86	67 42 58.20	− 8 49 18.95	− 13.71		June 20. Slight play to Mic. diaphragm.
		76.8	81.2	78.0							
			82.0	78.0							
			82.2	78.0							53. Circle may have been slightly disturbed.
			82.5	78.0							
86.0	91.0		89.5	81.0	9 40.94	12.51	35 10 27.35 }	+ 23 27 24.36		S.	55–56. Sun's semi-diam., 15′ 47″.54. Mean hour angle of 2 observations N. L.; hour angle of 1 observation S. L.
			88.0	81.0	− 2 58.80	+ 12.98	35 42 2.43 }				
			88.0	81.2							
			90.0	81.0							

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B	C.	D.	E	F.	Mean.	MIC.	Mic. zero.	Barometer.
1849.			No.	m. s.	° ′ ″	′	″	″	″	″	″	Revs.	r.	In.
June 22	1	ε Bootis	4		31 9 63.1	54.3	57.8	55.9	55.8	58.8	57.62	30.1303	30.6645	30.070
	2	Libræ, (4894)	3		74 14 63.1	54.9	59.9	57.2	56.0	57.7	58.13	31.2096		.070
	3	α^2 Libræ	5									28.6421		
	4	Nadir			199 59 63.9	57.4	60.9	61.8	55.4	60.6			30.6645	
	5				.8	.4	.8	.5	.4	.5				
											59.855	30.6622		
	6				.7	.1	.8	.9	54.4	.4				
	7				.8	.3	.7	.9	.4	.7				
July 2	8	Sagittarii, (6077)	3		82 39 61.6	59.1	61.8	63.9	53.0	53.1	58 75	31.1046	30.6073	.088
	9	Nadir			199 59 61.3	58.7	60.2	67.4	52.4	57.1				
	10				.1	.9	.2	.4	.4	.4				
											59.567	30.6004		
	11				.3	59.0	.4	.1	.4	.1				
	12				.5	.4	.2	.2	.3	.2				
3	13	Ophiuchi, (5781)	4		74 24 63.0	58.1	62.9	65.0	54.5	55.4	59.82	31.3503	30.5669	.225
	14	Ophiuchi, (5846)	3		83 39 60.9	58.5	61.8	64.2	54.1	54.7	59.03	33.8760		.222
	15	Ophiuchi, (5851)	5									28.4244		
	16	α Ophiuchi	4		46 9 61.4	57.2	61.2	62.2	53.8	55.0	58.47	28.1118		.220
	†17	Moon, N. L.		— 30.9	78 4 61.1	59.1	62.7	64.2	55.5	55.5	59.68	30.0017		.216
	†18	Moon. S. L.		+ 34.7	78 34 61.2	59.1	62.8	64.0	55.0	55.5	59.60	30.2507		
	19	Sagittarii, (6079)	4		82 39 60.6	58.4	61.1	62.7	53.5	52.9	58.17	31.0495		.218
	20	μ^1 Sagittarii	4		79 59 61.4	59.4	61.9	63.8	54.4	54.8	59.28	33.0491		.216
	21	Nadir			199 59 61.9	58.9	60.9	66.5	52.9	57.2				
	22				.8	59.1	61.0	.3	53.0	.5				
	23				62.0	.1	60.7	.5	52.9	.1	59.734	30.5627		
	24				.0	.0	.8	.4	.8	.3				
	25	α Lyræ	4		20 14 61.8	58.0	62.1	63.1	55.1	54.8	59.15	30.8596		
	26	β Lyræ	4		25 39 61.9	58.8	61.7	62.9	53.6	54.5	58.90	28.7008		.208
5	27	Nadir			199 59 63.0	57.8	60.2	63.8	53.6	57.7			30.5774	
	28				.2	.7	.2	64.1	.4	.9				
	29				.4	.9	.5	63.4	.7	.6	59.395	30.5676		
	30				.2	58.1	.5	.7	.4	.9				
	31	γ Draconis	4		7 24 63.9	57.7	61.9	64.1	54.8	55.8	59.70	32.3676		.202
	†32	μ^1 Sagittarii	4		79 59 63.9	60.4	63.0	65.0	56.1	55.9	60.72	33.0507		.202
	†33	α Lyræ	3½		20 14 64.1	58.6	63.2	65.0	55.8	56.1	60.47	30.8922		
	†34	β Lyræ	4½		25 39 64.1	59.8	62.5	63.5	54.1	56.2	60.03	28.7334		.200
19	†35	Sun, N. L.		— 38.5	37 49 64.4	56.4	60.7	61.6	54.0	57.8	59.15	31.2969	30.5548	.249
	†36	Sun, S. L.		+ 32.5	38 19 62.2	53.9	59 6	60.5	51.2	56.9	57.38	29.7171		
	†37	Nadir			199 59 63.3	53.8	58.8	60.9	50.4	57.6				
	38				.1	54.0	.8	.9	.0	.9				
	39				.1	53.9	.9	61.5	.1	.5	57.455	30.5143		
	40				62.6	.8	.8	.2	.1	.5				
30	41	Nadir			199 59 65.1	57.4	61.9	63.2	54.1	60.1			30.5537	
	42				64.8	.8	.9	.2	.1	.0				
	43				.7	.9	.2	.3	.2	.2	60.275	30.5581		
	44				.8	.8	.0	.5	.4	.0				
	†45	Moon, N. L.		— 1.9	77 39 67.4	59.8	65.6	64.8	57.9	60.4	62.65	28.8315		30.040
	†46	Ceres	4½		88 4 63.0	56.2	59.1	59.1	52.1	55.6	57.52	32.6307		.036
30	†47	δ Ursæ Minoris	4	— 7.3	332 19 64.2	53.5	63.2	59.7	54.5	57.6	58.77	31.9473	30.5537	30.036
	48				63.8	53.9	63.1	59.6	54.4	57.7				
	†49	51 (Hev.) Cephei, S. P	4	+ 0.1	326 9 64.6	54.4	61.9	58.8	52.0	57.1	58.02	30.5371		.034
	50				64.6	54.5	61.5	58.6	52.0	57.0				
	51	β Lyræ	4		25 42 34.0	26.0	30.0	29.8	23.1	26.2	28.18	31.1853		.040
	52	ζ Aquilæ	4		45 14 64.0	55.4	60.4	59.5	53.7	56.0	58.17	31.1305		.042
Sept. 24	†53	β Aquilæ	4		52 49 61.0	58.2	62.1	62.1	53.6	51.5	58.08	29.8597	30.5162	29.910
	54	α^1 Capricorni	3½		71 49 62.1	59.2	62.6	62.1	54.7	51.9	58.77	30.1269		.914
	55	α^2 Capricorni	5									27.9514		
	56	α Cephei	4		356 59 65.4	63.3	68.8	68.9	58.4	54.5	63.22	33.6823		.918
	57	β Aquarii	4		65 9 63.4	60.9	65.7	65.2	56.4	52.1	60.62	34.0684		
	58	β Cephei	4		348 59 63.5	61.4	67.9	65.9	56.7	52.9	61.38	30.6802		.926
	†59	ε Pegasi	4		49 44 63.9	61.8	65.9	66.0	56.9	54.6	61.53	33.8100		.924
	†60	α Aquarii	4		59 59 63.9	60.8	66.5	64.7	57.2	54.1	61.20	34.7976		.924

THERMOMETERS. At.	Ext.	St.	Up.	Low.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″		
81.1	85.2	81.7	84.8	84.2	+ 33.57	+ 10.77	31 10 41.96	+ 27 42 57.29	— 23.68	C.	
85.0	80.5		84.5	82.3	— 34.26	1 16.15	74 15 40.02	— 15 22 0.77	12.05		
					+ 2 7.11	1 16.28	74 18 21.52	15 24 42.27	12.02		
		82.0	79.5	79.7						C.	
			81.0	80.0							June 27. Took out Mic. diaphragm, and removed a minute fibre from the wires.
69.7	60.1	77.7	67.0	70.7	— 31.25	1 50.17	82 41 17.67	23.47 38.42	9.28		
		77.0	69.7	69.2							
			70.0	70.0							July 2. After Nadir, changed reading of mic. head.
70.0	64.6	73.0	66.7	69.5	49.23	1 19.43	74 25 30.02	15 31 50.77	11.18		
69.5	64.4		66.5	69.3	— 3 28.16	1 54.31	83 38 25.18	24 44 45.93	9.75		
					+ 2 14.65	1 54.80	83 44 8.48	— 24 50 29.43	9.71		15–16. Moon's semi-diam., 14′46″.22; applied 3″.22 cor. for defective illumination of S. Limb. Mean hour angles of 4 observations of each limb.
69.2	64.1				2 34.29	+ 28.07	46 13 0.83	+ 12 40 38.42	13.85		
69.0	62.5		66.5	69.0	36.44	— 44 11.04	77 21 25.08	— 18 42 32.05			
					+ 18.88	— 44 20.95	77 50 57.53				
68.5	62.5		66.2	68.8	— 30.33	+ 1 50.15	82 41 18.09	23 47 38.34	9.15		
68.0	61.9				2 36.00	1 38.68	79 59 1.96	— 21 5 22.71	9.14		
		73.0	67.7	68.5							
			68.5	68.8							
	58.4	72.8	67.0	67.7	— 18.41	0.24	20 14 40.98	+ 38 38 58.27	9.10		
66.5	58.1		67.0	67.2	+ 1 57.27	5.76	25 42 1.93	33 11 37.32	7.87		
		72.5	70.0	70.5							
			71.0	71.0							
70.0	65.5	72.5	67.2	69.5	— 1 52.50	— 12.72	7 22 54.48	+ 51 30 44.77	14.62		
69.8	65.4		66.7	68.8	2 35.43	+ 1 37.97	79 59 3.26	— 21 5 24.01	9.12		32. Through light clouds.
	65.0		67.8	66.3	— 19.78	0.24	20 14 40.93	+ 38 38 58.32	9.68		33. Through clouds.
69.0	64.8				+ 1 55.89	5.68	25 42 1.60	33 11 37.65	8.43		34. Do.
81.8	86.0	77.7	83.0	80.0	— 46.34	15.54	37 49 28.35	+ 20 48 22.17			35–36. Sun's semi-diam., 15′48″.74.
	88.0		84.0	81.2	+ 52.40	+ 16.04	38 21 5.82				
		77.7	84.5	81.5							37. Mean hour angles of 4 observations of each limb.
			84.5	80.7							
		78.2	84.0	81.0							
			84.0	8 0							45. Mean hour angle of 7 observations N. L.
81.5	79.5	78.7	80.2	81.0	+ 1 48.31	— 29 24.17	77 12 26.79	— 18 18 47.54			46. Applied AR. 18*h*. 2*m*. 47*s*.
81.0	78.1		80.2	80.0	— 2 10.53	+ 2 11.91	88 4 58.90	— 29 11 19.65			
81.2	78.2				— 1 27.58	— 1 0.50	332 17 30.69	+ 86 36 8.56	— 17.80		47. Mean hour angles of 9 observations at intervals of 20*s*.
82.0	78.3		80.5	80.2	+ 1.04	— 1 15.26	326 8 43.80	+ 87 15 4.55	+ 16.28		49. Mean hour angles of 11 observations.
80.5	78.0		80.0	80.0	— 39.69	+ 5.51	25 41 54.00	33 11 44.25	— 14.94		
80.3	77.8		80.0	79.8	— 36.25	26.02	45 14 47.94	13 38 51.31	12.06		53. Unsteady.
67.0	59.0	67.3	65.0	66.5	+ 41.24	36.79	52 51 16.11	+ 6 2 23.14	12.86		
66.5	57.8		64.5	65.8	24.45	1 12.60	71 51 35.82	— 12 57 56.57	6.08		
					+ 2 41.11	+ 1 12.70	71 53 52 58	— 13 0 13.33	6.04		September 24. Some inclination of vertical wires
64.5	55.8		62.0	64.2	— 3 18.88	— 24.43	356 56 19.91	+ 61 57 19.34	13.61		at 15*r*. mic wire in coin. with its image,
	55.6		61.5	64.0	3 43.14	+ 57.58	65 7 15.06	— 6 13 35.81	5.33		30 about 3 diam. outside.
63.8	55.6				10.30	— 34.51	348 59 16.57	+ 69 54 22.68	12.07		45 about 6 do.
63.5	55.2		61.3	63.7	3 26.90	+ 32.77	49 42 7.39	+ 9 11 31.86	7.19		59. Very unsteady.
63.0	55.1	67.0	61.2	63.5	— 4 28.94	+ 48.08	59 56 20.34	— 1 2 41.09	— 4.23		60. Unsteady.

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Sept. 24	† 1	Neptune	4½		70 4 63.8	62.5	66.6	66.0	57.9	53.6	61.73	29.9312		29.922
	2	Nadir			199 59 64.7	64.7	67.2	70.8	56.5	56.2			30.5162	
	3				.8	65.0	.0	71.0	.3	.3				
	4				65.0	64.5	66.9	70.1	.7	.6	63.338	30.5693		
	5				64.9	.4	.9	.3	.8	.7				
26	†6	Sun, S. L.		— 28.5	60 29 63.9	60.9	63.7	63.1	57.2	54.1		28.7629	30.5365	.726
	†7	Sun, N. L.		+ 42.2	59 54 63.9	69.1	63.6	63.0	56.2	54.2		25.9102		
	8	Nadir			199 54 64.7	60.2	63.8	64.9	54.8	55.4			25.7606	
	9				.5	.1	.6	.9	.9	.3				
	10				63.9	.7	.9	65.1	55.2	54.8	60.588	25.7700		
	11				.8	.7	.5	.3	54.9	55.2				
27	12	β Aquilæ	4		52 49 55.8	52.6	56.2	57.7	48.3	47.4	53.00	30.7955	30.5220	30.076
	13	α² Capricorni	4		71 54 56.7	53.7	57.1	57.1	49.5	47.2	53.55	32.6628		.076
	14	Capricorni, (6995)	4		74 9 56.9	54.3	58.8	59.6	50.7	46.9	54.53	33.0366		.076
	15	Capricorni, (7134)	4		77 34 56.5	55.6	60.0	59.1	51.8	48.1	55.18	33.4592		.076
	†16	α Cygni	4		14 9 58.1	56.1	60.3	59.2	50.2	47.6	55.23	31.7260		.078
	†17	61¹ Cygni	4		20 54 58.5	56.1	59.7	59.5	51.3	48.0	55.52	32.8192		
	†18	61² Cygni	4									32.7605		
	19	Moon, S. L.		— 1.6	74 44 58.0	56.5	60.1	60.9	51.7	47.9	55.85	28.9033		.086
	20	Nadir			199 59 56.9	55.4	57.8	60.3	49.0	48.0				
	21				.6	.8	58.1	.1	.1	.3	54.560	30.4384		
	22				.6	.6	57.5	.6	48.4	.5				
	23				.5	.6	.4	.6	.6	.1				
	†24	Capricorni, (7525)	4		76 9 56.4	54.9	59.7	59.6	51.1	45.6	54.55	28.1484		.094
	†25	Capricorni, (7580)	4		75 39 61.8	63.6	67.9	67.9	57.6	53.3	62.48	30.0626		.092
	†26	Metis	3¾		81 4 64.0	63.7	66.3	68.0	57.5	54.1	62.27	31.1174		.090
28	27	α Aquilæ	4		50 24 62.8	59.5	63.2	63.2	55.8	54.2	59.78	31.1913	30.5458	.100
	28	β Aquilæ	4		52 49 59.3	56.9	60.6	60.0	52.3	51.1	56.70	29.8290		.104
	29	α² Capricorni	4		71 54 64.7	61.2	64.0	64.9	57.8	54.9	61.25	32.7482		.104
	30	Nadir			199 59 64.6	60.9	65.5	65.9	55.5	56.2				
	31				.8	61.0	.4	.8	.8	.1	61.425	30.5685		
	32				63.8	60.9	.6	66.0	.9	.2				
	33				.9	61.1	.3	.1	.8	.1				
	†34	61¹ Cygni	4		20 54 64.6	61.5	65.1	64.5	57.0	55.0	61.28	32.9251		
	†35	61² Cygni	4									32.8689		
	36	ζ Cygni	4		29 14 64.5	60.0	64.8	64.5	58.1	55.4	61.22	29.1783		.108
	37	α Cephei	4½		356 59 64.5	61.0	66.9	66.1	58.1	55.1	61.95	33.6901		.108
	38	β Aquarii	5		65 4 64.8	61.1	66.5	65.8	58.1	53.9	61.70	29.2931		.106
	39	Capricorni, (7525)	4½		76 14 65.1	62.4	67.3	67.1	59.1	54.5	62.58	33.0381	30.5458	
	40	Capricorni, (7580)	4		75 39 65.8	63.5	68.9	67.4	58.1	55.1	63.13	30.0576		30.106
	†41	Metis	4		81 4 66.4	64.3	67.7	67.1	59.0	56.8	63.55	32.1490		104
	†42	Moon, S. L.		— 0.4	71 44 67.4	63.9	67.8	66.9	59.1	57.1	63.70	31.1525		.102
	43	Aquarii, (7773)	4		67 24 67.9	66.2	69.9	69.1	61.3	58.1	65.42	31.3232		.100
	†44	Neptune	4¼		70 9 63.0	61.5	66.1	64.9	57.8	54.1	61.23	32.9072		.100
	†45	Venus, S. L.	4		46 49 60.7	59.5	62.9	62.5	54.9	50.6	58.52	31.9153		.100
	†46	Venus, N. L.	4									32.1600		
29	†47	Sun, N. L.		— 34.5	61 9 60.9	59.5	61.5	63.7	54.9	52.0	58.75	30.5560	30.5287	.050
	†48	Sun, S. L.		+ 31.3	61 39 61.2	60.1	62.0	63.1	55.1	52.6	59.02	28.5884		
	49	Nadir			199 59 60.6	57.1	61.4	61.9	52.0	52.7				
	50				.2	.0	.3	.9	51.4	.7	57.483	30.4886		
	51				59.6	.5	60.7	.9	52.1	.5				
	52				60.1	.4	.9	62.1	.0	.6				
Oct. 8	†53	β Aquarii	4		65 4 63.8	60.8	65.0	65.5	55.0	52.0	60.35	29.3396	30.5434	.083
	†54	ε Pegasi	4¼		49 39 64.3	62.9	66.2	68.0	58.1	55.5	62.50	29.0874		.084
	†55	Lalande, (42700)	3		80 29 62.7	62.9	65.6	66.4	56.9	51.9	61.07	18.4516		.086
	†56	Metis	5									18.7361		
	†57		4									18.4848		
	†58	Aquarii, (7649)	5½									15.6000		
	†59	Neptune	4		70 9 62.7	63.2	66.5	67.6	57 7	53.1	61.80	28.9234		.083

No. for ref.	THERMOMETERS At.	Ext.	St.	Up.	Lo.	CORRECTIONS FOR— Inst.	Object.	Corrected Readings	Observed Declinations.	Reduct'n to 1850.0	Observer	REMARKS.
	°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
1	62.7	56.1		61.0	63.5	+ 36.76	+ 1 8.27	70 6 46.76	— 11 13 7.51			1. Extremely faint.
2			67.0	62.0	63.8						C.	App. AR. 22h. 19m. 33s.
3												
4												
5				62.7	64.7							
6	70.0	73.5				1 51.87	41.55	60 32 33.90	— 1 22 53.11			6–7. Sun's semi-diam., 16 1.″56. Mean hour angles of 4 observations of each limb.
7			66.2	70.7	67.5	4 49.93	40.72	60 0 30.82				
8			66.2	71.5	68.0							
9												
10												
11				71.8	68.0							
12	65.5	56.4	65.7	62.0		+ 45.63	37.19	52 51 15.82	+ 6 2 23.43	— 12.87		
13	65.0	55.9				— 2 14.48	1 13.38	71 53 52.45	— 13 0 13.20	5.91		16. One bisection.
14	64.5	55.8		62.0		2 37.96	1 19.60	74 8 36.17	15 14 56.92	5.08		17. Four bisections.
15	64.2	55.4				3 4.50	+ 1 30.49	77 32 21.17	— 18 39 41.92	3.29		18. Three bisections.
16	64.2	55.4				1 15.63	— 5.92	14 8 33.68	+ 44 45 5.57	17.16		
17		54.9		60.5	63.0	2 24.30	+ 0.88	20 52 32.10	38 1 7.15	13.65		
18						— 2 20.61	+ 0.88	20 52 35.79	+ 38 1 3.46	13.70		
19	63.5	54.9				+ 1 41.51	— 58 52.10	73 47 45.26	— 14 54 6.01			19. Mean hour angle of 7 observations of S. limb.
20			66.2	71.5	68.0							
21												
22												
23				71.8	68.0							
24	63.2	53.4		62.5	63.0	2 29.10	+ 1 26.45	76 13 50.10	17 20 10.85	1.63		24. Unsteady.
25		54.3				+ 28.86	1 24.60	75 41 55.94	16 48 16.69	1.61		25. Very unsteady.
26	62.5	54.4		62.3	63.0	— 37.40	1 39.46	81 6 4.33	— 22 12 25.08			26. Extremely faint, other stars preceding 5′ N. and 5′ S.
27	68.0	66.0	65.0	69.3		— 40.55	33.21	50 24 52.44	+ 8 28 46.81	13.56		App. AR. 21h. 51m. 25s.
28	67.7	65.4				+ 45.03	36.58	52 51 18.31	— 6 2 20.94	12.84		
29	68.0	63.1		69.0		— 2 18.35	1 12.42	71 53 55.32	— 13 0 16.07	5.85		
30			65.0	67.5	66.5							
31												
32												34. Three observations.
33				68.0	66.5							35. Two observations.
34		60.8		67.5	66.3	2 29.46	0.87	20 52 32.69	+ 38 1 6.56	13.78		
35						— 2 25.93	0.87	20 52 36.22	38 1 3.03	13.83		
36	67.8	61.0				+ 1 25.90	+ 9.34	29 16 36.46	29 37 2.79	13.03		
37	67.8	60.4				— 3 17.51	— 24.36	356 56 20.08	+ 61 57 19.17	14.52		
38	67.8	60.1		67.0	66.5	+ 1 18.69	+ 57.41	65 7 17.80	— 6 13 38.55	4.66		41. Three observations; no other stars near in declination. App. AR. 21h. 51m. 2s.4.
39		60.0				— 2 36.56	+ 1 25.36	76 13 51.38	17 20 12.13	1.53		
40	67.7	59.9				+ 30.67	1 23.70	75 41 57.50	16 48 18.25	1.51		42. Mean hour angle of seven observations.
												44. App. AR. 22h. 19m. 13s.; 4 observations.
41		59.6				— 1 40.71	+ 1 38.36	81 5 1.20	22 11 21.95			45–46. Venus' semi-diam., 7″.92; three observations of S. L., two of N. L.; cor. for def. M. N. S., 0″.48.
42	67.5	59.5		66.7	66.5	38.15	— 57 56.87	70 46 28.68	11 52 49.43			
43		59.2				48.83	+ 1 2.30	67 25 18.89	8 31 39.64	2.30		
44	67.0	59.0	65.0	65.0		2 28.33	1 8.34	70 8 1.24	— 11 15 1.99			47–48. Interrupted by persons coming in observing room. Sun's semi-diam., 16′ 1″.78. Mean hour angle of four observations of N. L., three observations of S. L.
45	63.5	66.2		65.5	63.8	1 27.10	25.44	46 48 56.86	+ 12 4 50.31			
46						1 42.47	24.96	46 48 41.01				
47	57.0	73.7		70.0	65.5	— 1.15	43.10	61 10 40.70	— 2 33 3.24			53. Very unsteady.
48						+ 2 1.28	43.97	61 42 44.27				54. Very unsteady.
49				71.5	66.5							55. Observation very poor.
50												56. Extremely faint; observation doubtful; Mic. wire (2), red. = + 0r.0085.
51												57. Very poor.
52				71.6	66.5							55. App. AR. 21h. 47m. 15s.; observed with Mic. wire (2), red. = + 0r.0043.
53	59.0	48.0	61.5	55.7	57.5	1 15.62	58.77	65 7 14.74	— 6 13 35.49	7.82		
54	58.2	48.0		54.0		1 31.46	33.42	49 42 7.38	+ 9 11 31.87	— 7.81		56. App. AR. 21h. 48m. 40s ? 50s.
55	57.0	47.8		53.7		12 39.58	1 44.21	80 44 24.86	— 21 50 45.61	+ 0.97		57. App. AR. 21h 48m. 59s. (9.10) Mic. wire (2), red. = + 0r.0065.
56						12 21.69	1 39.56	80 44 2.32	21 50 23.07			58. Very poor.
57						12 37.50	1 44.20	80 44 22.77	21 50 43.52	1.01		59. App. AR 22h. 18m. 27s.
58						15 38.74	1 44.42	80 47 24.23	21 53 44.98	+ 1.14		
59	56.5	47.3		53.2		+ 1 41.76	+ 1 10.12	70 12 53.68	— 11 19 14.43			

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Oct. 8	1	Nadir			199 59 62.2	62.7	64.1	68.8	54.8	53.5			30.5434	
	2				.1	63.0	.0	.9	.8	.5	60.812	30.5563		
	3				61.8	62.3	63.9	.1	.7	.2				
	4				.7	.3	.6	.3	.3	52.9				
	† 5	Venus, S. L.	3½		50 49 62.5	61.7	64.1	66.8	56.8	53.0	60.82	31.1212		30.168
	† 6	Venus, N. L.	4½									31.3472		
11	† 7	Lalande, 42700	4		80 34 64.3	66.1	67.6	68.6	59.9	55.0	63.58	23.2631	30.5431	29.834
	† 8	Metis	5½									32.7475		
	9	Aquarii, (7649)	5									20.4046		
	†10	Neptune	4		70 14 64.3	65.0	67.9	68.4	59.9	54.8	63.38	32.6550		.836
	11	Nadir			199 59 64.0	65.4	66.3	70.8	57.6	54.9				
	12				.0	.0	.1	.9	.2	55.1	63.112	30.5925		
	13				63.5	.4	65.9	.7	58.1	.1				
	14				.5	.5	.9	.8	57.9	.1				
	†15	α Piscis Australis	4		89 14 64.5	66.0	66.9	66.9	58.0	53.5	62.63	29.5168		.834
	†16	α Pegasi	4		44 29 64.3	63.4	65.8	66.3	57.0	52.9	61.62	31.3772		.834
25	17	Capricorni, (7374)	4		74 39 61.4	61.8	64.4	64.5	57.8	51.3	60.20	30.8049	30.5748	30.246
	18	β Aquarii	4		65 4 61.3	58.4	62.0	61.5	55.1	49.2	57.92	29.2909		
	19	β Cephei	4½		348 59 62.6	60.4	66.5	64.2	56.9	51.8	60.40	30.8059		.240
	†20	Moon, S. L.		— 1.1	73 19 68.8	61.3	65.1	66.0	58.5	52.1	61.97	29.0434		.246
	21	Lalande, 42700	5½		80 44 63.1	62.9	63.1	64.2	56.7	52.1	60.35	32.7591		
	22	Aquarii, (7649)	4									29.8958		
	23	Lalande, 42984	4½		81 19 63.1	63.1	64.2	64.4	57.1	50.9	60.47	28.5455		.246
	24	Lalande, 43106	4									38.9506		
	†25	Neptune	4		70 14 63.4	63.2	66.0	65.7	59.4	53.2	61.82	28.8712		.244
	26	Nadir			199 59 62.9	63.9	64.8	68.5	56.9	54.9				
	27				63.2	.9	.8	.8	.3	55.0	62.033	30.6071		
	28				.5	.7	.8	.4	.2	54.8				
	29				.3	.7	.3	.2	.0	.9				
26	30	Nadir			199 59 60.9	59.7	61.8	64.3	54.9	52.1			30.5607	
	31				.8	.9	.9	.1	.9	.1	58.950	30.5440		
26	†32	Aquarii, (7840)	4		70 19 59.2	58.6	61.3	61.5	54.9	49.5	57.50	31.3722	30.5607	30.300
	†33	Moon, S. L.		— 1.8	69 59 59.9	59.1	62.6	62.1	56.1	50.2	58.33	32.7227		.300
27	†34	Sun, S. L.		— 18.5	72 4 58.6	58.0	58.9	61.4	53.7	47.9	56.42	31.3019	30.5416	.294
	†35	Sun, N. L.		+ 36.5	71 29 56.4	56.2	58.3	60.1	51.2	46.5	54.78	28.6745		
	36	Nadir			199 59 59.5	57.9	60.6	63.0	51.6	49.6				
	37				.7	58.0	.7	.0	.9	50.0	57.125	30.4958		
	38				58.4	57.9	.8	.1	52.3	.1				
	39				.5	58.0	.6	.3	.4	.1				
	†40	Lalande, 42700	4		80 44 63.3	62.1	63.4	64.9	56.9	52.8	60.57	32.7134	30.5474	.222
	41	Aquarii, (7649)	4									29.8357		
	42	Lalande, 42984	4½		81 19 63.2	62.0	62.7	63.9	56.3	52.1	60.03	38.4634		.228
	43	Lalande, 43106	4									38.9006		
	†44	Neptune	4		70 19 63.2	61.9	64.0	65.0	57.9	53.7	61.07	33.2272		.224
	†45	Aquarii, (7840)	4		63.4	62.1	64.2	65.8	58.2	53.5		31.3962		.222
	†46	ζ Pegasi	4		48 49 63.7	60.8	63.1	65.9	57.3	54.4	60.87	30.5253		.224
	47	Aquarii, (7970)	4		67 14 63.9	62.7	65.4	65.0	57.8	53.5	61.38	30.3782		.224
	†48	α Piscis Australis	4		89 14 65.1	64.1	65.4	65.0	57.1	53.4	61.68	29.4212		.228
	49	Nadir			199 59 64.3	62.3	64.8	68.1	56.2	56.2				
	50				.1	.2	.5	67.9	.3	.2				
	51				.6	.1	.2	68.0	.9	.1	61.954	30.5785		
	52				.6	.2	.1	.0	.9	.1				
	†53	Moon, S. L.		— 2.4	65 59 64.1	60.9	64.9	63.8	57.5	53.1	60.72	33.7306		.230
	†54	Piscium, (5271)	4		62 29 63.6	62.2	63.9	65.8	57.9	53.1	61.08	32.0620		.230
	†55	Piscium, (8328)	4		63 14 63.5	62.8	63.6	64.8	57.2	52.1	60.67	29.5745		.230
Nov. 2	†56		4		80 19 64.5	65.1	66.3	69.8	57.8	54.6	63.02	31.6524	30.5335	
	†57		6		79 29 64.1	65.5	67.1	69.9	58.8	54.4	63.30	25.6706		.104
	†58		4¼									38.2221		
	†59	Neptune	4		70 19 65.1	65.5	67.4	70.7	59.9	55.1	63.95	32.4349		.094

THERMOMETERS. At.	Ext.	St.	Up.	Low.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1805.0	Observer.	Remarks.
°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
		61.5	55.0	56.2						C.	
			56.5	58.5							
56.5	54.0	59.8	59.4	59.0	— 36.30	+ 31.25	50 49 55.77	+ 8 3 50.75			
					50.49	30.89	50 49 41.22				
57.2	45.9	58.7	50.2	53.3	+ 7 37.33	1 43.72	80 44 24.68	— 21 50 45.43	+ 1.29		
					— 2 18.48	1 58.49	80 34 23.59	21 40 41.34			8. Extremely faint (9.10) mag.; 2 observations; 2 other stars in vicinity.
					+10 36.90	1 43.93	80 47 24.41	21 53 45.16	1.39		
56.0	45.1		51.0	53.3	— 2 12.67	1 9.89	70 14 0.60	11 20 21.35			7. App. AR. 21*h*. 47*m*. 15*s*.
											8. " " 21*h*. 48*m*. 51*s*.
		58.7	51.3	54.0							10. " " 22*h*. 18*m*. 15*s*.
			55.0	55.0							
55.5	45.1		51.0	55.0	+ 1 4.47	2 33.30	89 18 40.40	— 30 25 1.15	+ 4.73		15. Unsteady.
55.3	44.5		48.0	53.5	— 52.40	26.66	44 29 35.88	+ 14 24 3.37	— 4.37		16. Unsteady.
61.5	56.0	61.0	61.2		— 14.45	1 21.65	74 41 7.40	— 15 47 28.15	1.19		
	54.9				+ 1 20.65	+ 58.28	65 7 16.85	— 6 13 37.60	3.76		
61.2	54.5		59.5	60.5	— 14.52	— 34.95	348 59 10.93	+ 69 54 28.32	18.48		
	53.4		58.8	60.0	+ 1 36.07	— 58 6.83	72 23 31.21	— 13 29 51.96			20. Mean hour angle of 7 observations.
	53.0				— 2 17.22	+ 1 43.67	80 44 26.80	21 50 47.55	2.44		
					+ 42.65	1 43.92	80 47 26.92	21 53 47.67	2.57		
60.0	52.2		57.5		+ 2 7.48	1 46.60	81 23 54.55	22 30 15.30	2.95		
					— 8 44.17	1 45.82	81 23 0.14	22 19 20.89	3.02		
59.5	51.0		57.6		+ 1 47.01	1 10.18	70 17 59.01	— 11 24 19.76			25. App. AR. 22*h*. 17*m*. 32*s*.
		61.5	59.8	60.0							
			60.7	60.5							
		60.5	64.0	61.0							
			64.0	61.2							
61.5	52.1	60.5	62.3	60.0	— 50.98	+ 1 10.47	70 20 16.99	— 11 26 37.74	+ 0.46		32. Very unsteady.
61.5	52.0				2 16.09	— 56 59.00	69 0 43.24	10 7 3.99			33. Very unsteady. Mean hour angle of 7 obs'ns.
58.4	60.5	59.0	61.0	58.8	— 47.50	+ 1 7.11	72 5 16.03	12 55 27.37			34. Unsteady.
					+ 1 56.77	1 5.66	71 32 57.21				34 to 35. Sun's semi-diam., 16′ 9″.41. Mean hour angles of 2 obs'ns of each limb.
		59.0	62.0	59.0							
			63.0	59.0							
63.2	56.5	59.7	63.2	61.0	— 2 16.07	1 42.86	80 44 27.36	21 50 48.11	2.68		40. Light haze.
					+ 44.71	1 43.18	80 47 28.46	21 53 49.21	2.80		
63.0	54.9		61.0	61.0	+ 2 10.92	1 45.90	81 23 56.85	22 30 17.60	3.20		
					— 8 43.91	1 45.22	81 13 1.34	22 19 22.09	3.26		
62.5	53.9				2 48.33	1 9.73	70 18 22.47	11 24 43.22			44. App. AR., 22*h*. 17*m*. 28*s*.
62.0	53.8		60.5		— 53.32	1 10.05	70 20 17.80	— 11 26 38.55	+ 0.57		45. Unsteady.
62.0	53.5				+ 1.38	32.07	48 50 34.32	+ 10 3 4.93	— 5.20		46. Unsteady.
61.0	53.2		59.7	60.3	10.63	1 2.99	67 16 15.00	— 8 22 35.75	+ 0.44		
61.2	53.0				+ 1 10.75	+ 2 32.84	89 18 45.27	30 25 6.02	7.09		
			59.5	60.0							48. Very unsteady.
			60.2	60.0							
61.5	51.9	59.7	60.0		— 3 20.40	— 55 20.12	65 1 20.29	6 7 40.95			53. Unsteady. Mean hour angles of 7 obs'ns.
60.0	51.0				— 1 35.14	+ 53.56	62 29 19.50	3 35 40.25	1.07		54. Very unsteady.
59.5	50.8		59.0	58.0	+ 1 1.12	55.09	63 16 56.88	4 23 17.63	1.56		55. Very unsteady.
											56. (Mag., 9.10.)
					1 10.29	1 43.19	80 20 35.92	21 26 56.67	3.13		57. Very faint (10) mag.
63.5	45.1	55.5	51.2	52.0	+ 5 5.49	1 40.22	79 36 49.01	20 43 9.76	2.91		App. AR, 21*h*. 50*m*. 58*s*.
					— 8 3.00	1 39.35	79 23 39.65	20 30 0.40	+ 3.09		58. App. AR, 21*h*. 57*m* 33*s*. (9)
62.5	44.5		51.0	52.0	— 1 59.44	+ 1 10.83	70 19 15.34	— 11 25 36.09			59. App. AR, 22*h*. 17*m*. 16*s*.

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Nov. 2	1	Nadir			199 59 65.6	65.5	66.9	72.7	58.0	56.9			30.5385	
	2				.4	.7	.9	.9	57.8	.6	64.212	30.6004		
	3				.3	.9	67.0	.4	58.1	.7				
	4				.3	66.1	66.6	.2	.2	.4				
	†5	α Piscis Australis	4		89 14 65.3	67.2	67.6	70.2	59.1	54.4	63.97	29.4957		30.092
	6	α Ursæ Majoris, S. P.	4		301 29 65.2	64.1	66.9	69.1	57.1	54.6	62.83	28.8411		.092
4	†7	Venus, S. L.	4		63 19 63.5	61.0	61.7	63.2	56.0	51.2	59.43	32.8828	30.5637	.176
	†8	Venus, N. L.	4									33.0935		
5	†9	Sun, S. L.		— 31.7	74 59 63.5	63.9	66.1	69.1	58.2	54.6	62.57	33.1549	30.5637	.150
	†10	Sun, N. L.		+ 33.5	74 24 63.1	63.5	66.0	67.8	57.1	53.4	61.82	30.6061		
	†11	Nadir			199 59 62.9	60.4	62.6	65.8	53.2	53.9				
	12				.8	.2	.4	.5	.0	.9	59.717	30.5592		
	13				.2	.4	.8	.8	.0	.8				
	†14				.3	.5	.5	.5	54.8	54.0				
	15	ζ Cygni	4		29 14 60.6	57.6	59.2	61.6	54.6	50.8	57.40	29.1688	30.5473	.104
	16	β Aquarii	4		65 4 61.0	57.0	60.6	61.3	54.5	49.9	57.38	29.2279		.108
	17	ε Pegasi	4		49 39 63.0	60.4	63.0	64.7	56.5	55.1	60.45	29.0341		.108
	†18	○ Ap. A.R. 21h. 49m. 56s.	3½		80 19 63.1	63.0	64.7	65.7	58.1	54.7	61.55	31.5744		.108
	19	Nadir			199 59 61.9	57.5	60.8	61.9	52.1	52.8				
	20				62.1	.4	.7	62.0	.1	.7				
											57.925	30.5143		
	21				61.5	58.1	.8	.6	.8	.6				
	22				.3	.1	.5	.7	.5	.7				
	†23	○ Ap. A.R. 21h. 57m. 33s.	4½		79 24 62.9	62.3	63.0	63.2	56.6	53.2	60.20	33.3220		.112
7	†24	● " " 21 48 13	6		80 19 63.6	62.3	64.2	66.8	57.5	55.3	61.62	30.1397	30.5550	29.850
	†25	○ " " 21 49 55	5⅓		80 19 63.6	62.3	64.2	66.8	57.5	55.3	61.62	31.5804		.850
	†26	○ " " 21 57 34	4		79 19 63.8	62.1	64.2	64.2	57.4	54.2	60.98	28.5392		.844
	†27	○ " " 21 59 27	4½									33.2686		
	†28	Neptune	4		70 19 64.3	61.6	63.5	65.5	56.8	54.9	61.10	31.9713		
	†29	Aquarii (7818)	6		76 19 64.9	62.3	65.0	66.8	58.2	53.8	61.83	28.2973		.842
	†30	Aquarii (7819)	6									28.2119		
	31	Nadir			199 59 64.1	62.1	62.9	67.0	55.5	56.6				
	32				.1	.0	3.1	.1	.2	.8	61.446	30.5780		
	33				.5	.0	.1	.1	.8	.6				
	34				.6	.1	2.9	.3	.8	.4				

THERMOMETERS.					CORRECTIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
At.	Ext.	St.	Up.	Low.	Inst.	Object.					
°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″		
		55.5	51.0	52.2						C.	
			53.0	53.5							
	43.6				+ 1 5.19	+ 2 35.13	89 18 44.29	— 30 25 5.04	7.92		5. Very unsteady.
52.0	43.6		50.2	52.0	+ 1 46.31	— 4 42.54	301 27 6.60	+ 62 33 27.35	+ 7.18		7. N. L. defective-cor., 0″.20.
60.0	54.3	59.0	60.0	59.0	— 2 25.68	+ 50.55	63 18 24.30	— 4 24 38.33			7–8. Venus' semi-diam., 6″.72, 4 obs'ns of S. L., 3 of N. L.
					2 38.91	56.34	63 18 10.86				
61.5	63.9				2 42.38	1 13.96	74 58 34.15	— 15 48 43.40			9–10. Sun's semi-diam., 16′ 11″.49. Mean hour angles of 4 obs'ns of each limb.
			62.8	60.5	— 3.08	1 12.42	74 26 11.16				
			63.0	60.0							11 to 14. Much motion of mercury.
			65.0	60.3							
64.0	61.6	60.0	64.3	61.0	+ 1 26.59	9.33	29 16 33.32	+ 29 37 5.93	— 15.08		
64.0	60.7				1 22.88	57.37	65 7 17.63	— 6 13 38.38	3.22		
64.0	60.0		64.5	61.5	+ 1 35.05	32.67	49 42 8.17	+ 9 11 31.08	— 7.77		
64.5	59.6				— 1 4.52	1 40.23	80 20 37.26	— 21 26 58.01	+ 3.28		18. Very faint (9.10) mag.
		60.0	63.7	61.0							
			64.0	61.0							
64.0	59.8				— 2 54.30	1 36.49	79 23 42.39	20 30 3.14	3.25		23. Very faint (9) mag.
65.5	59.3	62.5	64.0	63.0	+ 26.09	1 39.52	80 22 7.23	21 28 27.98	3.40		24. (10) Mag.
65.5	59.3	62.5	64.0	63.0	— 1 4.41	1 39.43	80 20 36.64	21 26 57.39	3.46		25. (9.10) Mag.
65.0	58.9				+ 2 6.63	1 35.78	79 23 43.39	20 30 4.14	3.44		26. Star of (8) mag. precedes (27) 8′ N.
					— 2 50.47	1 35.48	79 18 45.99	20 25 6.74	3.49		26. (9) Mag.
	58.5		63.5	63.0	— 1 28.96	1 8.28	70 19 40.42	11 26 1.17			27. (9) Mag.
65.0	58.8				+ 2 21.82	1 25.36	76 23 49.01	17 30 9.76	3.21		28. App. AR., 22*h*. 17*m*. 11*s*.
					+ 2 27.18	+ 1 25.36	76 23 54.37	— 17 30 15.12	+ 3.21		29 and 30. One bisection of each star.
			63.5	63.0							Compelled by disease of eyes to desist from observing. J. H. C. C.
			64.0	63.0							

OBSERVATIONS

WITH

THE MURAL CIRCLE,

1850.

NATIONAL OBSERVATORY

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
June 3	1	Nadir			199 59 17.2	12.0	15.0	21.0	2.5	9.3				
	2					15.4	10.8	12.8	19.5	1.2	7.2			
	3					15.5	10.3	13.5	18.2	1.8	6.8	11.700	29.9047	30.6736
	4					15.3	11.4	14.3	20.5	2.6	7.5			
	5					15.9	11.1	13.9	19.6	2.4	8.0			
	†6		3		31 44 16.3	11.5	14.8	17.3	3.3	7.8	11.83	30.6188	30.6736	30.190
	7	β Ursæ Minoris	3		344 7 35.6	29.5	35.4	36.4	24.5	26.3	31.28	30.1713		
	8	η Draconis	3		357 2 27.8	25.5	29.4	34.3	18.2	18.6	25.63	30.4404		30.190
	†9	Groombridge, 2418	2½		345 24 55.7	50.2	56.2	55.1	44.2	45.2	51.10	25.6964		30.184
	†10	Groombridge, 2420	3									32.2763		
	†11	Comet 1, 1850	3		345 14 65.8	60.0	65.0	68.0	53.2	54.8	61.13	26.8208		
	†12		3									26.8058		
	†13	(12)	5		345 13 33.6	28.0	32.3	35.3	21.5	23.0	28.95	25.9448		
5	14	Centauri (4686)	3		94 29 66.8	60.8	61.0	70.7	51.9	58.4	61.60	32.7686	31.0596	30.366
	15	Hydræ (4711)	3		84 44 66.8	59.0	61.7	70.4	52.3	58.0	61.37	30.0506		
	16	Hydræ (4763)	3		85 54 65.4	59.4	60.5	69.5	52.0	56.2	60.50	30.6742		
	17	Hydræ (4784)	3		87 39 65.3	57.7	58.0	67.5	49.9	55.4	58.97	30.7150		
	†18	Bootis (4812)	2		19 55 18.5	11.2	12.2	21.5	4.0	9.0	12.73	30.7690		
	19	Libræ (4854)	3		83 14 65.0	60.0	60.1	68.9	51.0	56.2	60.20	32.8193		30.367
	20	Libræ (4913)	3		82 52 40.3	35.3	35.2	43.0	27.0	31.8				
	21					42.5	36.0	36.0	44.8	29.0	33.0	36.16	30.3135	
	22	Hydræ (4930)	3		85 54 65.9	59.8	61.0	70.0	52.1	57.0	60.97	31.3555		
	†23	Hydræ (4940)	3		86 19 66.4	60.3	61.7	70.8	52.0	57.6	61.47	31.7194		30.364
	24	Lupi (5009)	3		89 49 64.8	59.3	59.4	68.1	50.1	55.9	59.60	32.5224		
	25	Lupi (5160)	3		92 44 65.4	59.2	59.2	68.0	50.0	55.1	59.48	30.3552		
	26	Lupi (5173)	3		93 4 64.7	58.7	58.2	68.9	49.2	55.2	59.15	31.9610		30.352
	27	Nadir			199 59 63.8	57.3	57.4	67.7	49.2	57.6				
	28					63.4	57.3	57.3	67.7	48.8	57.3			
	29					63.4	58.0	57.8	67.8	48.9	57.4	58.875	31.0402	31.0596
	30					63.5	57.5	57.6	67.5	49.1	57.6			
	31	(13)	3		345 47 34.8	27.1	30.3	35.9	20.3	27.0				
	32		3			36.2	27.8	31.5	37.4	22.0	27.0	29.77	33.3599	30.356
	†33	Ursæ Minoris (5769)	3		345 24 62.1	53.8	58.0	62.8	47.9	53.2	56.30	23.3239		
	34	Groombridge, 2418	2									26.2223		
	35	Groombridge, 2420	4									32.8005		
10	36	Centauri (4686)	3		94 29 67.1	61.1	63.9	81.0	57.1	64.3	64.75	32.7478	30.9955	29.964
	37	Hydræ (4711)	3		84 44 69.1	62.1	65.6	82.0	53.0	66.4	66.37	30.0507		29.970
	38	Hydræ (4763)	3		85 54 63.0	57.0	58.8	76.0	47.8	59.8	60.40	30.6001		
	39	Hydræ (4784)	3		87 39 62.9	54.9	57.0	73.8	46.0	58.6	58.87	30.6374		.974
	40	Libræ (4854)	3		83 12 36.2	31.7	33.1	47.5	20.7	33.8				
	41					37.8	31.7	33.4	49.2	21.8	34.8	34.31	30.4253	
	42	Libræ (4913)	3		82 52 34.9	28.3	29.6	45.9	17.2	30.3				
	43					35.8	28.6	30.4	46.4	18.9	31.7	31.50	30.1577	
	44	Hydræ (4930)	3		85 54 63.4	58.2	60.0	77.9	49.2	60.3	61.50	31.2835		
	45	Hydræ (4940)	3		86 19 64.0	57.6	59.9	78.0	48.1	61.6	61.53	31.6389		
	46	Lupi (5009)	3		89 49 63.8	59.6	60.5	77.5	48.8	61.1	61.88	32.4575		
	†47	(14)	2		347 34 65.4	56.9	62.3	77.2	48.3	64.4				
	†48					65.4	56.9	62.8	77.6	49.0	64.3	62.54	24.5523	30.000
	49	(15)	4										30.5677	
	†50	Comet 1, 1850	4½										29.8286	
	51	Ursæ Minoris (5769)	3½		345 29 62.8	55.1	59.1	74.0	47.3	59.8	59.68	28.1326		
	†52	(12)	3		345 14 62.4	54.8	59.1	72.8	47.1	59.6				
	†53					62.1	54.2	58.2	72.8	46.6	59.2	59.07	27.8279	30.010
	†54	α Lyræ	3		20 14 63.5	56.5	59.0	76.0	48.8	60.0	60.63	31.2080		
	55	Nadir			199 59 64.1	57.5	47.6	78.2	59.2	63.8				
	56					64.5	57.9	47.9	78.8	59.0	64.0	61.960	31.0267	30.9955
	57					64.4	58.2	48.1	78.5	59.2	64.0			
	58					64.1	58.2	48.0	78.5	59.3	64.0			
11	59	Centauri, (4686)	3		94 29 66.0	59.0	61.2	79.0	41.4	61.2	61.30	33.1176	31.3771	30.193
	60	Hydræ, (4711)	3		84 44 65.8	59.0	63.0	80.2	50.0	62.3	63.38	30.4020		.194

THERMOMETERS. At.	Ext.	St	Up.	Low.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″	H.	
67.3	61.0				+ 3.62	+ 11.91	31 44 27.36	+ 27 9 11.89	— 4.09		Latitude = 38° 53′ 39″.25.
					31.62	— 41.43	344 7 21.47	74 46 17.78	11.97		June 3 to June 13. Value of mic. revolution, 62″.816.
66.8	60.4				14.74	24.31	357 2 16.06	61 51 23.19	6.84		
66.0	58.3				+ 5 12.68	39.58	345 29 24.20	73 24 15.05	5.02		
					— 1 40.64	39.75	345 22 30.71	73 31 8.54	4.96		Observations of June 3 corrected for runs. R = + 1″.18.
					+ 4 2.02	39.85	345 18 23.30	73 35 16.25			
					4 2.96	39.85	345 18 24.24	73 35 15.01	4.62		
					4 57.96	39.87	345 17 46.14	+ 73 35 53.11	— 4.31		Observer from June 3 to 13, Professor Hubbard.
73.0	68.8				1 47.35	+ 3 21.20	94 31 35.45	— 35 37 56.20	+ 10.13		
					1 3.38	1 59.84	84 48 4.59	25 54 25.34	7.53		
					24.21	2 6.41	85 57 31.12	27 3 51.87	7.14		June 4. Broke all the wires of the diaphragm, and replaced them June 5 by a new system.
					21.65	+ 2 17.40	87 42 38.02	— 28 48 58.77	+ 7.12		
					+ 18.25	— 0.06	19 55 30.92	+ 38 58 8.33	— 8.05		
72.2	68.0				— 1 50.54	+ 1 52.16	83 15 1.82	— 24 21 22.57	+ 5.29		
					+ 46.87	1 50.59	82 55 13.62	24 1 34.37	4.54		6. Observed at 14*h*. 38*m*.
					— 18.59	2 6.45	85 56 48.83	27 3 9.58	4.75		
71.8	68.3				41.45	2 8.81	86 21 28.83	27 27 49.58	4.10		June 5. Saw the comet; too faint for observation.
					— 1 31.89	2 33.22	89 51 0.93	30 57 21.68	4.23		9. Two bisections. 10. One bisection.
					+ 44.25	3 1.08	92 48 44.81	33 55 5.56	2.73		11–12. One bisection on wire III.
71.2	67.5				— 56.62	+ 3 4.51	93 7 7.04	— 34 13 27.79	+ 2.55		12. Star of (10) mag. observed at 17*h*. 10*m*.
70.4	65.9				— 2 24.50	— 38.85	345 44 26.42	+ 73 9 12.83	— 6.11		13. One bisection.
					+ 8 5.92	39.15	345 32 23.07	73 21 16.18	5.96		Stars marked (12) (13) (14) &c., are stars of comparison for comet.
					+ 5 3.87	39.22	345 29 20.95	73 24 18.30	5.70		
					— 1 49.36	— 39.39	345 22 27.55	+ 73 31 11.70	— 5.65		18. Two bisections.
72.0	68.1				— 1 50.07	+ 3 18.83	94 31 33.51	— 35 37 54.26	+ 10.46		23. Three bisections.
71.6	67.8				+ 59.35	1 58.52	84 48 4.24	25 54 24.99	7.65		33. One bisection.
					24.84	2 4.97	85 57 30.21	27 3 50.96	7.29		47. (9) Mag.
71.0	67.6				22.49	2 15.84	87 42 37.20	28 48 57.95	7.31		48. (8.9) Mag.
					35.82	1 50.87	83 15 1.00	24 21 21.75	5.39		50. Two bisections.
					+ 52.63	1 49.35	82 55 13.48	24 1 34.23	4.63		50. Observation corrected for daily motion of comet 3420″ per day, going south.
					— 18.09	2 5.05	85 56 48.46	27 3 9.21	4.92		
					40.42	2 7.54	86 21 28.65	27 27 49.40	4.77		
					— 1 31.84	+ 2 31.77	89 51 1.81	— 30 57 22.56	+ 4.49		52–53. (10) Mag.
69.5	64.0				+ 6 44.74	— 35.80	347 41 11.48	+ 71 12 27.77	— 10.02		
					46.87	35.94	347 34 53.47	71 18 45 78	10.02		
					1 13.30	35.92	347 35 39.92	71 17 59.33			
					2 59.83	38.91	345 32 20.60	73 21 18.65	7.70		
69.5	63.0				3 18.98	39.28	345 17 38.77	73 36 0.48	6.59		
					— 13.35	+ 0.23	20 14 47.51	+ 38 38 51.74	— 12.70		54. Observed with power 215.
67.5	61.0				— 1 49.33	3 23.18	94 31 35.15	— 35 37 55.90	+ 10.56		
67.2	60.5				+ 1 1.25	+ 2 1.14	84 48 5.77	— 25 54 26.25	+ 7.72		

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.				m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
June 11	1	Hydræ, (4763)	3	- - -	86 9 65.3	60.0	62.4	81.8	50.0	62.2	63.62	45.3877	31.3771	
	2	Hydræ, (4784)	3	- - -	87 39 65.0	57.9	58.6	78.5	47.9	59.9	61.30	31.0745		
	† 3	Bootis, (4812)	3	- - -	19 54 64.8	58.0	60.3	77.8	49.2	60.8	61.82	30.9323		
	4	Libræ, (4854)	3	- - -	83 14 65.3	60.4	62.1	80.0	49.4	60.5	62.95	33.1995		30.202
	5	Libræ, (4913)	3	- - -	82 52 36.0	30.8	31.1	48.9	18.6	30.4	33.14	30.6002		
	6				37.5	31.1	32.0	49.9	19.8	31.6				
	7	Hydræ, (4930)	3½	- - -	85 54 63.5	57.7	59.0	79.0	48.3	58.4	60.98	31.6946		
	8	Hydræ, (4940)	3	- - -	86 19 63.0	58.2	59.8	78.8	47.8	59.5	61.18	32.0685		30.204
	9	Lupi, (5009)	3	- - -	89 49 64.1	59.6	60.3	78.9	48.8	59.1	61.80	32.8968		
	10	Groombridge, 2319	3	- - -	348 9 64.0	57.1	62.8	77.9	48.5	60.3	61.77	27.2493		
	†11	(16)	3	- - -	- - -	--	--	--	--	--	- - -	30.7675		
	†12	Comet 1, 1850	4	- - -	- - -	--	--	--	--	--	- - -	35.2671		
	†13	(14)	2½	- - -	347 34 63.4	56.0	62.7	67.2	47.9	60.8	59.67	24.8695		30.208
	14	(15)	3	- - -	- - -	--	--	--	--	--	- - -	30.9068		
	15	Groombridge, 2356	3	- - -	347 9 63.8	55.9	61.2	77.2	47.7	60.2	61.00	30.4088		
	16	(13)	3	- - -	345 44 63.3	56.0	59.8	75.3	47.6	58.0	60.00	31.2832		
	17	Groombridge, 2418	2	- - -	345 24 62.6	56.2	59.3	75.6	47.5	58.3	59.92	26.5949		
	18	Groombridge, 2420	4	- - -	- - -	--	--	--	--	--	- - -	33.1554		
	19	(12)	3	- - -	345 14 64.2	58.2	61.2	76.8	49.4	60.0	61.63	28.2304		30.204
	20	Nadir	- -	- - -	199 59 64.3	58.0	59.3	80.2	47.8	62.8	62.030	31.4094	31.3771	
	21				64.7	57.6	59.2	79.9	47.2	62.9				
	22				64.8	57.8	59.7	79.5	48.0	63.0				
	23				64.7	58.2	59.5	79.1	47.6	63.0				
13	†24	Comet 1, 1850	3	- - -	349 14 62.9	53.4	58.9	72.6	48.1	59.0	59.15	32.3614	31.4131	30.015
	†25		3	- - -								32.1268		
	26	(19)	3	- - -	- - -	--	--	--	--	--	- - -	30.2753		
	27	(20)	3	- - -	- - -	--	--	--	--	--	- - -	30.9902		
	28	Nadir	- -	- - -	199 59 63.8	53.1	56.2	73.2	45.9	61.0	58.875	31.3952	31.4131	
	29				63.4	53.1	56.1	72.8	46.0	61.2				
	30				63.5	53.1	56.5	73.3	46.2	61.0				
	31				63.6	53.5	56.4	72.9	46.2	61.0				
30	32	(23)	3	- - -	359 44 60.9	51.3	55.1	70.7	53.3	59.9	58.53	30.4457	31.3973	29.970
	†33	(21)	5	- - -	353 54 60.0	50.1	54.8	68.0	44.5	59.6	56.17	27.0223		
	34	Nadir	- -	- - -	199 59 60.1	48.1	51.2	68.0	42.5	59.1	54.975	31.3174		
	35				60.1	49.1	51.4	68.0	42.6	59.5				
	36	(23)	3	- - -	359 44 59.5	46.5	50.1	64.8	43.5	57.2	53.60	30.3847	31.4011	29.920
July 1	37	(18)	3	- - -	348 44 60.0	47.9	53.6	65.5	44.1	57.5	54.77	30.8455		.930
	38	β Draconis	3	- - -	6 29 60.0	47.1	50.2	65.3	44.2	57.1	53.95	32.4362		.927
	39	Nadir	- -	- - -	199 59 60.8	47.6	50.2	67.2	41.5	59.9	54.533	31.3141		
2	40	α Aurigæ	3	- - -	13 4 60.0	52.5	51.9	68.4	44.3	59.2	56.55	32.6555	31.3685	29.989
3	41	(23)	2½	- - -	359 44 47.6	35.2	41.1	54.6	31.8	45.1	42.57	30.2122		.966
	42	(18)	3	- - -	348 44 60.0	49.2	56.2	67.6	44.1	59.1	56.03	30.8347		.971
	43	ε Ursæ Minoris	3	- - -	336 34 60.5	47.5	55.3	66.3	44.0	57.7	55.22	28.6758		.968
	44	γ Draconis	3	- - -	7 24 60.0	49.2	54.0	67.9	43.8	56.9	55.30	33.0547		.970
	45	Nadir	- -	- - -	199 59 60.0	50.7	54.5	70.6	43.8	59.2	56.467	31.3123	31.3685	
July 5	46	(23)	3	- - -	359 44 59.9	47.3	53.1	67.2	44.3	59.2	55.17	30.4349	31.3827	29.960
	47	(21)	3	- - -	353 54 59.8	47.0	53.1	65.2	43.5	59.1	54.62	27.0080		.973
	48	Nadir	- -	- - -	199 59 59.9	48.5	52.2	68.2	42.6	60.1	55.250	31.3071		
10	49	ε Ursæ Majoris	3	- - -	336 34 60.0	46.5	55.1	66.9	41.1	56.1	54.28	28.6658	31.3531	30.215
	50	γ Draconis	3	- - -	7 24 60.7	50.2	55.5	71.5	42.9	57.5	56.38	33.0885		.228
	51	Nadir	- -	- - -	199 59 58.9	49.8	53.6	71.6	40.9	58.5	55.555	31.2824		
11	52	β Libræ	3	- - -	67 44 60.0	49.4	55.7	69.5	40.6	57.5	55.45	33.9711	31.3607	30.167
	53	α Coronæ Borealis	3	- - -	31 39 59.9	50.0	54.4	68.5	41.7	57.9	55.40	31.3640		.180
	54	Nadir	- -	- - -	199 59 60.0	50.6	55.1	73.1	41.5	60.5	56.800	31.3098		
	55	β Draconis	3	- - -	6 29 59.8	50.4	55.6	71.2	42.5	57.2	56.12	32.4835		30.190
	56	γ Draconis	3	- - -	7 24 59.5	50.1	55.7	71.6	42.5	56.5	55.98	33.0843		.180
	57	α Lyræ	3	- - -	20 14 60.2	51.0	55.8	70.5	42.8	56.4	56.12	31.6560		.198
19	58	α Virginis	3	- - -	69 14 60.0	50.5	56.6	69.5	42.8	59.4	56.47	31.0521	31.3641	29.743
	59	Nadir	- -	- - -	199 59 60.2	48.0	51.6	70.3	40.0	58.5	54.842	31.2821		
	60				60.0	48.5	52.0	70.4	40.1	58.5				

THERMOMETERS. At.	Ext.	St.	Up.	Low.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
					−14 40.10	+ 2 7.82	85 57 31.34	− 27 3 52.09	+ 7.37	H.	
					+ 19.01	+ 2 19.02	87 42 39.33	− 28 49 0.08	+ 7.40		
					+ 27.94	− 0.06	19 55 29.70	+ 38 58 9.55	− 9.26		3. Observed with power 215.
66.0	59.0				− 1 54.48	+ 1 53.55	83 15 2.02	− 24 21 22.77	+ 5.45		
					+ 48.80	1 52.03	82 55 13.97	24 1 34.72	4.70		
					− 19.96	2 7.84	85 56 48.88	27 3 9.63	5.00		
65.0	58.6				43.43	2 10.62	86 21 28.37	27 27 49.12	4.85		
	58.5				− 1 35.46	+ 2 35.43	89 51 1.77	− 30 57 22.52	+ 4.60		
					+ 4 19.30	− 35.82	348 13 45.25	+ 70 39 57.37	− 10.77		
					+ 38.29	35.91	10 4.15	70 43 35.10	10.65		11. (10.11) Mag.
					− 4 4.35	36.03	5 21.39	70 48 17.86			12. Observation corrected for motion of comet, 3480″ per day; three bisections.
63.5	56.3				+ 6 48.78	36.59	347 41 11.86	71 12 27.39	10.28		
					29.54	36.74	34 52.47	18 46.78	10.28		13. (8.9) Mag.
	55.8				1 0.82	37.35	347 10 24.47	71 43 14.78	9.73		
					5.90	39.51	345 44 26.39	73 9 12.86	8.14		
					+ 5 0.40	39.95	345 29 20.37	73 21 18.88	7.74		
					1 51.71	40.14	22 28.07	73 31 11.18	7.70		
60.5	52.8				+ 3 17.66	40.35	345 17 38.94	73 36 0.21	6.89		
72.4	71.0				− 59.57	33.27	349 13 26.31	69 40 12.94			24 Four bisections.
					− 44.83	33.26	13 41.06	39 58.19	11.65		25. One bisection.
					+ 1 11.47	33.22	15 37.40	38 1.85	11.46		
					26.57	33.24	14 52.48	38 46.77	11.44		
82.5	81.2				59.82	20.17	359 45 38.18	59 8 1.07	16.00	B.	After June 30th, value of Mic. revolution, 62″.868. All observations after this date made by Professor Benedict.
82.2	80.8				4 34.84	26.72	353 59 4.29	64 54 34.96	16.38		33. One bisection.
				81.0							
85.9	84.3			85.0	1 3.90	20.02	359 45 37.48	59 8 1.77	16.18		
84.6	83.3		84.5	84.0	+ 34.93	33.01	348 44 56.69	70 8 42.56	16.06		
84.1	80.1			84.0	− 1 5.20	13 16	6 28 35.52	52 25 3.73	− 11.95		
				83.5							
82.0	85.5		84.5	84.0	− 1 20.91	6.62	13 3 29.02	45 50 10.23	+ 10.70		
83.5	80.5		84.0	83.5					− 16.56		
82.2	78.5				+ 1 12.69	20.19	359 45 35.07	59 8 4.18	16.57		
80.8	76.5		82.0	82.0	31.67	33.35	348 44 54.35	70 8 44.90	14.43		
79.5	75.5		80.0	81.5	+ 2 49.29	52.10	336 36 52.41	82 16 46.84	+ 11.45		
			84.0	82.5	− 1 46.01	12.38	7 22 56.91	51 30 42.34			
88.5	85.4		88.2	87.5	+ 59.59	20.00	359 45 34.76	59 8 4.49	16.91		
87.2	83.2		87.0	86.5	4 35.03	26.59	353 59 3.06	64 54 36.19	17.42		
				86.0							
78.8	73.8		77.0	79.0	+ 2 48.94	52.80	336 36 50.42	82 16 48.83	16.23		
77.4	71.4		76.0	78.5	− 1 49.10	− 12.59	7 22 54.69	+ 51 30 44.56	13.59		
				78.0							
77.5	72.9			78.5	2 44.11	+ 1 1.42	67 43 12.76	− 8 49 33.51	1.01		
77.3	72.5			77.0	0.08	+ 11.57	31 40 6.89	+ 27 13 32.36	11.87		
			78.0	78.0							
76.0	69.4		72.5	76.5	1 10.59	− 13.56	6 28 31.97	52 25 7.28	14.80		
75.0	68.5		72.0	76.0	1 48.36	− 12.64	7 22 54.98	51 30 44.27	13.96		
74.0	67.0				− 18.56	+ 0.23	20 14 37.79	+ 38 39 1.46	− 12.25		
77.0	80.0		79.5	78.5	+ 19.61	1 3.11	69 16 19.19	− 10 22 39.94	+ 3.74		
			79.5	79.0							

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs	r.	In.
July 19	1	α Herculis	3	. . .	44 19 60.0	48.8	52.0	67.0	40.1	55.8	53.95	32.1119	31.3641	29.830
	2	γ Draconis	3	. . .	7 24 60.0	48.5	53.8	69.9	41.1	55.6	54.82	33.1075		.844
23	3	ζ Ursæ Minoris	3	. . .	340 39 60.0	50.1	54.4	69.4	43.6	58.8	56.05	32.4151	31.3765	.112
	4	γ Draconis	3	. . .	7 24 60.5	50.1	53.8	70.5	43.5	57.5	55.82	33.1629		30.116
	5	α Lyræ	3	. . .	20 14 60.0	50.2	54.8	70.1	43.5	57.6	56.03	31.7305		.122
	6	ζ Aquilæ	3	. . .	45 14 60.0	50.1	53.5	69.9	42.8	57.1	55.57	31.9721		.124
	7	Nadir	- -	. . .	199 59 60.0	51.9	55.0	72.4	43.5	58.5	56.883	31.3269		
24	8	β Draconis	3	. . .	6 29 63.5	53.5	57.8	72.3	46.6	59.2	58.82	32.5890	31.3776	30.154
	9	γ Draconis	3	. . .	7 24 59.5	49.5	53.0	68.5	43.9	56.0	55.07	33.1552		.156
	10	Nadir	- -	. . .	199 59 60.1	49.8	52.9	70.5	42.5	58.8	55.767	31.3103		
25	11	η Bootis	3	. . .	39 44 60.0	48.8	48.3	65.5	42.8	59.1	53.95	32.1668	31.4114	30.056
	12	α Bootis	3	. . .	38 49 60.0	48.2	51.5	65.2	44.5	59.5	54.82	26.2778		.050
	13	ε Bootis	3	. . .	31 9 60.0	47.8	50.1	65.4	43.1	58.5	54.15	30.6302		
	14	Nadir	- -	. . .	199 59 60.0	47.9	49.6	67.3	41.4	59.8	54.258	31.3217	31.4114	
	15				60.0	47.9	49.5	67.8	41.6	59.5				
August 9	†16				85 14 59.8	48.0	52.5	68.4	41.6	59.8	55.02	32.9890	30.9568	29.900
	†17	Scorpii, (5901)	3	. . .	95 54 59.5	58.8	51.3	67.4	41.2	57.1	55.88	25.8688		
	†18	Scorpii, (5915)	3	. . .	. . .	--	--	--	--	--	--	36.2433		
	19	γ Draconis	3	. . .	7 24 59.9	45.6	51.3	65.0	42.1	56.0	53.32	32.7770		.899
	20	Sagittarii, (6304)	3	. . .	83 9 59.6	48.0	51.8	66.1	40.5	55.5	53.58	36.0947		.896
	21	ζ Aquilæ	3	. . .	45 14 60.0	47.1	51.8	66.1	42.1	56.1	53.87	31.5423		.884
	22	δ Aquilæ	3	. . .	56 4 61.0	47.1	51.0	67.8	42.1	57.5	54.42	32.2761		.880
	23	Nadir	- -	. . .	199 59 60.0	47.2	51.0	68.0	41.2	57.9	54.217	30.8648	30.9568	
12	24	Venus, N. L.	3	. . .	58 24 66.8	54.1	59.6	74.4	47.2	63.9	61.00	31.3210	30.9696	30.100
	25				85 14 60.0	47.5	55.5	69.1	41.4	55.6	54.86	33.0060		.060
	26	Ophiuchi, (5813)	3	. . .	. . .	--	--	--	--	--	--	34.6097		
	27	Scorpii, (5901)	3	. . .	95 54 60.5	49.8	55.5	70.1	41.6	56.2	55.62	25.9254		.065
	28	Scorpii, (5915)	3	. . .	. . .	--	--	--	--	--	--	36.2850		
	†29	γ Draconis	3	. . .	7 24 57.8	45.0	50.7	66.0	39.4	53.0	51.98	32.7605		.068
	30	Sagittarii, (6304)	3	. . .	83 9 60.0	48.8	54.4	68.1	40.1	53.9	54.22	36.1283		.060
	31	Sagittarii, (6314)	3	. . .	. . .	--	--	--	--	--	--	29.3798		
	32	δ Aquilæ	3	. . .	56 4 60.0	46.1	50.9	69.0	40.2	55.1	53.55	32.2877		.052
	33	Nadir	- -	. . .	199 59 59.5	46.9	52.1	68.9	40.0	56.6	54.000	30.8742	30.9696	
14	34	β Libræ	3	. . .	67 39 60.0	46.7	52.5	65.4	40.0	56.6	53.53	28.8090	30.9849	29.874
	35	Moon, N. L.	3	. . .	73 4 59.5	46.4	51.8	64.0	39.5	53.5	52.78	25.7375		.877
	36	β^1 Scorpii	3	. . .	78 14 60.0	46.6	53.4	64.3	40.5	54.6	52.23	30.3240		.872
	37	α Scorpii	3	. . .	84 59 60.1	47.8	55.0	67.6	41.5	56.6	54.77	33.4230		.876
	38	Nadir	- -	. . .	199 59 61.1	49.8	53.1	71.3	41.4	59.5	56.033	30.9218	30.9849	
16	39	α Lyræ	3	. . .	20 14 59.8	47.6	52.6	68.3	40.5	55.0	53.97	31.3404	30.9363	
	40	Sagittarii, (6507)	3	. . .	80 54 59.2	48.2	54.0	68.6	39.3	54.5	53.97	36.4137		30.112
	41	α Aquilæ	3	. . .	50 24 60.0	48.6	53.9	70.2	41.6	57.1	55.27	31.6121		.122
	42	Nadir	- -	. . .	199 59 60.0	50.0	53.3	72.3	40.5	58.1	55.70	30.8679		
23	†43	ζ Aquilæ	3	. . .	45 19 59.8	48.2	51.4	68.8	40.8	55.5	54.08	31.6003	30.9681	29.916
	†44	δ Aquilæ	3	. . .	56 4 60.9	48.8	51.9	70.9	41.8	56.8	55.18	32.3249		.919
	†45	α Aquilæ	3	. . .	50 24 60.5	48.5	51.9	70.0	42.1	57.1	55.02	31.6182		.912
	46	Nadir	- -	. . .	199 59 59.9	48.6	51.9	70.6	40.8	57.2	54.958	30.8879		
	47				59.5	49.5	51.5	71.5	40.8	57.7				
26	48	Sagittarii, (6507)	3	. . .	80 54 60.0	48.8	51.5	67.5	41.0	53.1	53.65	36.4147	30.9746	.924
	49	δ Aquilæ	3	. . .	56 4 60.9	46.3	51.0	67.5	41.1	54.5	53.50	32.3088		.931
	50	Lalande, 27221	3	. . .	81 14 61.1	50.8	53.5	68.0	41.5	53.5	54.73	30.1461		.934
	51	Nadir	- -	. . .	199 59 60.0	48.0	49.5	69.1	40.6	56.0	53.870	30.8771		
28	52	γ Draconis	3	. . .	7 24 60.0	46.9	51.4	67.1	40.9	53.4	53.28	32.8060	30.9669	30.284
	53	μ^1 Sagittarii	3	. . .	79 59 59.9	48.9	51.8	67.4	41.6	53.7	53.88	33.3150		.286
	54	α Lyræ	3	. . .	20 14 60.1	46.1	52.1	65.6	41.5	52.5	52.98	31.3803		.290
	55	Sagittarii, (6507)	3	. . .	80 49 60.9	50.1	52.1	69.9	40.9	53.9	54.63	31.7085		.296
	56	Nadir	- -	. . .	199 59 59.8	46.8	50.8	69.2	38.6	54.9	53.142	30.8578		
	57				58.5	47.1	49.7	69.2	38.8	54.3				
29	58	γ Draconis	3	. . .	7 24 60.0	47.5	50.5	67.4	41.1	53.7	53.37	32.8328	30.9730	.276
	59	μ^1 Sagittarii	3	. . .	79 59 60.5	49.6	52.5	68.5	42.2	55.1	54.73	33.3404		.274
	60	Sagittarii, (6507)	3	. . .	80 49 60.4	48.3	51.6	67.0	39.8	53.5	53.43	31.6729		.275

No. for ref.	THERMOMETERS. At.	Ext.	St.	Up.	Low.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
	°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″		
1	76.2	72.3		74.5	76.5	— 47.01	+ 25.03	44 19 31.97	+ 14 34 7.28	— 12.08	B.	
2	75.5	70.9		74.0	76.0	1 49.60	— 12.44	7 22 52.78	51 30 46.47	16.15		
3	79.0	76.4		78.0	78.5	1 5.30	— 45.47	340 38 5.28	78 15 33.97	20.18		
4	76.2	72.0		75.0	77.0	1 52.31	— 12.53	7 22 50.98	51 30 48.27	17.16		
5	75.6	72.0		74.0	76.5	22.26	+ 0.23	20 14 34.00	38 39 5.25	15.58		
6	75.0	71.5		73.5	76.5	37.51	+ 26.41	45 14 44.47	13 38 54.78	13.52		
7					77.0							
8	77.6	74.2		78.0	77.5	1 16.16	— 13.42	6 28 29.24	52 25 10.01	18.10		
9	76.6	73.1		76.5	77.0	1 51.76	— 12.52	7 22 50.79	51 30 48.46	17.37		
10					77.0							
11	85.0	89.9		85.5	83.5	— 47.49	+ 19.38	39 44 25.84	19 9 13.41	7.50		
12	85.0	87.0			83.0	+ 5 22.74	18.61	38 55 36.17	19 58 3.08	7.73		
13		86.0		85.0	83.5	+ 49.11	10.75	31 10 54.01	+ 27 42 45.24	12.06		
14												
15				84.0	83.0							
16	84.1	81.2		85.5	83.5	— 2 7.76	1 57.52	85 14 44.78	— 26 21 5.53	1.66		16. Very steady.
17		80.4		83.5	84.0	+ 5 19.88	3 35.07	96 3 50.83	37 10 11.58	0.03		17. Do.
18						— 5 32.36	+ 3 32.32	95 52 55.84	— 36 59 16.59	0.36		18. Do.
19	83.7	79.7		82.5	83.5	1 54.43	— 12.25	7 22 46.64	+ 51 30 52.61	20.85		
20	83.2	79.8		82.0	82.5	5 23.01	+ 1 47.24	83 6 17.81	— 24 12 38.56	7.49		
21	82.8	79.4			83.0	36.81	25.80	45 14 42.86	+ 13 38 56.39	16.12		
22	82.6	78.3		81.5	83.0	1 22.96	39.92	56 4 11.38	2 49 27.87	14.95		
23				83.5	82.5							
24	80.1	82.6		81.5	81.5	22.09	46.16	58 25 25.07	+ 0 28 14.18			
25	79.9	77.2		78.5	80.0	2 8.02	1 59.07	85 14 45.91	— 26 21 6.66	1.31		
26						— 3 48.84	1 58.92	85 13 4.94	26 19 25.69	1.79		
27	79.5	72.0				+ 5 17.12	3 39.77	96 3 52.51	37 10 13.26	0.09		
28						— 5 34.16	+ 3 36.95	95 52 58.41	— 36 59 19.16	0.16		
29	79.0	76.0				1 52.59	— 12.41	7 22 46.98	+ 51 30 52.27	21.45		29. One bisection.
30	78.6	75.8		77.5	79.5	— 5 24.94	+ 1 48.66	83 6 17.94	— 24 12 38.69	7.41		
31						+ 1 39.95	1 49.22	83 13 23.39	— 24 19 44.14	7.52		
32	77.9	74.9		87.0		— 1 22.87	40.42	56 4 11.10	+ 2 49 28.15	15.24		
33					79.0							
34	83.5	82.8		83.5	83.0	+ 2 16.79	+ 59.69	67 43 10.01	— 8 49 30.76	4.08		
35	83.2	81.3		83.0	83.0	5 29.89	— 28 11.53	72 42 11.14	13 48 31.89			
36	82.8	80.0		82.5	83.0	+ 41.55	+ 1 28.08	78 17 2.86	19 23 23.61	— 1.13		
37	82.1	79.1		81.5	82.0	— 2 33.28	1 56.55	84 59 18.04	— 26 5 38.79	+ 0.01		
38					80.0							
39					77.0	25.41	0.23	20 14 18.79	+ 38 39 10.46	— 20.99		
40	74.7	69.0			76.5	5 44.35	1 40.41	80 50 50.03	— 21 57 10.78	9.71		
41	75.0	67.4			76.0	42.49	33.13	50 24 45.91	+ 8 28 53.34	17.11		
42					77.0							
43	74.2	70.8			74.0	39.74	26.27	45 14 40.61	13 38 58.64	17.87		43. Beautifully steady.
44	74.0	70.8			74.0	1 25.30	40.56	56 4 10.44	2 49 28.81	16.17		44. Steady.
45	73.8	70.5			74.0	40.87	32.71	50 24 46.86	+ 8 28 52.39	17.79		45. Do.
46												
47					74.0							
48	74.0	68.2			75.5	5 42.00	1 39.99	80 50 51.64	— 21 57 12.39	9.25		
49	74.0	68.0			75.0	— 1 23.88	40.79	56 4 10.41	+ 2 49 28.84	16.35		
50	73.9	68.0			75.0	+ 52.09	+ 1 41 81	81 17 28.63	— 22 23 49.38	10.88		
51					75.0							
52	74.2	68.3			73.0	— 1 55.62	— 12.69	7 22 44.97	+ 51 30 54.28	23.84		
53	73.4	66.9			73.0	2 27.62	+ 1 37.93	79 59 4.19	— 21 5 24.94	6.99		
54	72.0	66.1				25.99	0.25	20 14 27.24	+ 38 39 12.01	22.85		
55	71.9	64.6			72.5	46.62	+ 1 41.89	80 50 49.90	— 21 57 10.65	9.25		
56												
57					72.5							
58	75.0	71.0			73.5	1 56.92	— 12.62	7 22 43.83	+ 51 30 55.42	23.99		
59	74.9	69.8			73.5	2 28.83	+ 1 37.34	79 59 3.24	— 21 5 23.99	7.02		
60	73.4	68.0			73.0	— 44.00	+ 1 41.12	80 50 50.54	— 21 57 11.29	— 9.26		

DATE.	No. for ref.	OBJECT.	Wire used.	Horizontal.	MICROSCOPES. A	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.			No.	° ′	° ′	° ′	° ′	° ′	° ′	° ′	″	Revs.	r.	In.
August 29	1	Sagittarii, (6726)	3		[illegible]	[illegible]	[illegible]	69.1	40.4	53.5	54.12	33.3064	30.9730	30.278
	2	Nadir			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	53.067	30.8627		
30	3	Venus N. L.	3		[illegible]	[illegible]	54.4	70.2	43.5	59.1	56.87	32.5397	30.9709	.212
	4	γ Draconis	3		7 24	[illegible]	48.4	[illegible]	[illegible]	54.5	54.20	32.8358		.158
	5	μ^1 Sagittarii	3		[illegible]	[illegible]	49.4	51.5	67.5	41.4	54.5	54.12	33.3090	.159
	6	α Lyræ	3		[illegible]	[illegible]	[illegible]	[illegible]	41.4	53.3	53.40	31.3817		.160
	7	Sagittarii, (6507)	3		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	54.0	53.98	31.6686		.160
	8	Nadir			[illegible]	48.[illegible]	51.[illegible]	69.1	40.2	56.0	54.433	30.8823		
	9				[illegible]	[illegible]	[illegible]	69.7	40.5	56.1				
31	10	δ Draconis	3		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	54.0	52.68	32.2002	30.9875	.034
	11	γ Draconis	3		7 24	[illegible]	[illegible]	66.1	40.9	54.6	52.97	32.8358		.026
	12	α Lyræ	3		[illegible]	[illegible]	[illegible]	[illegible]	41.0	54.1	52.90	31.4149		.028
	13	Sagittarii, (6507)	3		[illegible]	[illegible]	[illegible]	[illegible]	40.0	54.4	54.03	31.6583		.030
	14	δ Aquilæ	3		[illegible]	[illegible]	[illegible]	[illegible]	41.3	54.8	53.52	32.3138		.030
	15	Nadir			[illegible]	47.[illegible]	[illegible]	7.1	40.1	56.8	53.883	30.8902		
	16				[illegible]	47.[illegible]	[illegible]	67.6	40.1	56.7				
Sept. 2	17	Sagittarii, (6507)	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	40.2	54.0	54.00	31.6610	30.9823	.109
	18	δ Aquilæ	3		[illegible]	[illegible]	[illegible]	[illegible]	40.9	54.8	53.37	32.3116		.110
	19	α Aquilæ			50 24	[illegible]	47.2	50.4	66.5	40.9	55.3	53.40	31.6294	.112
	20	Nadir			[illegible]	[illegible]	[illegible]	[illegible]	39.8	56.2	53.617	30.8808		
	21				[illegible]	47.1	[illegible]	[illegible]	40.2	56.1				
3	22		1	— 13 [illegible]	[illegible]	[illegible]	51.4	55.7	40.2	52.9		30.191		.170
	23		2	9 [illegible]	[illegible]	[illegible]	51.2	55.8	40.5	53.1		.401		.166
	24	Polaris, S. P.	3	[illegible]	[illegible]	48.1	51.4	55.8	40.2	53.0	52.74	.488	30.9678	.166
	25		4	— 9 47.[illegible]	[illegible]	45.7	51.4	55.9	40.0	52.9		.412		.167
	26		5	— [illegible]	[illegible]	45.9	52.8	55.1	40.8	52.8		.165		.168
	27	μ^1 Sagittarii	3		[illegible]	48.8	51.9	68.4	42.0	54.1	54.20	33.2954		.145
	28	α Lyræ	3		[illegible]	47.0	51.9	66.7	42.2	53.9	53.58	31.3955		.150
	29	Sagittarii, (6507)	3		80 49	[illegible]	51.[illegible]	68.9	40.5	53.4	53.88	31.6754		.154
	30	δ Aquilæ	3		56 4	[illegible]	50.9	68.9	40.2	53.5	53.37	32.3212		30.150
	31	α Aquilæ	3		[illegible]	48.[illegible]	51.9	68.5	41.8	55.0	54.27	31.6405		.150
	32	Nadir			[illegible]	48.0	51.1	69.5	39.9	55.8	54.183	30.8753	30.9678	
	33				[illegible]	48.[illegible]	[illegible]	70.1	40.0	55.8				
4	34	μ^1 Sagittarii	3		79 59	[illegible]	51.2	67.5	42.1	54.8	54.23	33.2837	30.9789	30.042
	35	α Lyræ	3		[illegible]	[illegible]	50.0	65.4	41.7	54.0	52.87	31.3988		.048
	36	Sagittarii, (6507)	3		[illegible]	48.0	51.1	67.1	40.5	53.8	53.40	31.6348		.046
	37	Sagittarii, (6726)	3		82 89	[illegible]	[illegible]	65.8	39.2	53.0	52.50	31.2950		.048
	38	Nadir			199 59	[illegible]	47.1	50.0	67.1	40.5	56.0	53.608	30.8772	
	39				[illegible]	47.5	50.[illegible]	68.0	40.7	56.5				
5	40	Serpentis, (6066)	3		82 49	61.0	48.1	50.5	67.0	40.1	53.1	53.30	34.1971	30.9759	29.914
	41	μ^1 Sagittarii	3		79 59	[illegible]	50.1	51.9	68.8	41.9	55.0	54.77	33.2692	.916
	42	Sagittarii, (6507)	3		80 49	[illegible]	48.0	51.2	67.1	40.2	54.1	53.43	31.6338	.918
	43	Nadir			199 59	[illegible]	46.1	[illegible]	67.2	39.8	55.2	53.033	30.8651	
6	44	μ^1 Sagittarii	3		79 59	60.8	48.4	51.0	66.9	41.9	54.9	53.98	33.7779	31.4834	30.092
	45	α Lyræ	3		20 14	60.0	45.1	49.8	65.0	41.5	54.0	52.57	31.9233	.100
	46	Sagittarii, (6507)	3		80 49	61.0	48.2	51.1	67.8	40.5	54.1	53.76	32.1361	.102
	47	δ Aquilæ	3		56 4	60.0	46.2	50.0	67.1	42.0	54.4	53.28	32.8061	.106
	48	α Aquilæ	3		50 21	60.0	46.1	49.0	65.0	40.8	54.4	52.55	32.1048	.110
	49	Nadir			199 59	60.0	47.6	50.0	67.0	39.9	56.8	53.550	31.3808	
10	†50	γ Draconis	3		7 24	60.1	47.8	51.2	68.8	41.9	53.5	53.88	32.8415	30.9631	30.024
	†51	μ^1 Sagittarii	3		79 59	60.0	49.1	52.2	69.0	42.1	54.1	54.42	33.2813	.024
	†52	α Lyræ	3		20 14	60.0	47.2	50.9	67.5	42.1	53.4	53.52	31.4018	.038
	53	Sagittarii, (6507)	3		80 49	59.8	48.0	51.5	68.4	39.6	52.9	53.37	31.6400	.044
	54	α Aquilæ	3		50 21	59.5	46.5	50.0	66.5	40.9	54.5	52.98	31.5992	.052
	55	Nadir	3		199 59	60.0	47.6	51.1	69.8	40.3	54.9	53.950	30.8669	
11	56	μ^1 Sagittarii	3		79 59	60.0	48.5	51.5	67.5	42.1	54.2	53.97	33.2740	30.9841	30.048
	57	α Lyræ	3		20 14	60.6	46.7	50.8	66.5	42.1	54.3	53.50	31.4172	.060
	58	Sagittarii, (6507)	3		80 49	60.0	47.6	51.0	67.1	40.2	53.5	53.23	31.6431	.068
	59	Nadir			199 59	60.0	47.5	49.9	68.1	40.2	56.2	53.650	30.8831	
12	60	α Herculis	3		44 19	59.0	47.5	49.9	67.7	40.2	53.4	52.95	31.7777	30.9713	30.127

THERMOMETERS.					CORRECTIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
t.	Ext.	St.	Up.	Low.	Inst.	Object.					
°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	° ′ ″		
6	66.5			72.0	2 26.70	+ 1 49.34	82 39 16.76	− 23 45 37.57	− 10.55	B.	
				72.0							
9	77.5			76.5	1 38.63	+ 1 2.72	67 34 20.96	− 8 40 41.71			
9	70.3			73.5	1 57.24	− 12.59	7 22 44.37	+ 51 30 54.88	24.12		
5	70.0			73.0	2 27.05	+ 1 36.93	79 59 4.00	− 21 5 24.75	7.02		
0	69.5			72.5	25.83	0.23	20 14 27.80	+ 38 39 11.45	23.20		
5	69.1			72.5	43.86	+ 1 40.48	80 50 50.60	− 21 57 20.60	9.25		
				72.5							
4	75.9			76.5	1 16.24	− 13.32	6 28 23.12	+ 52 25 16.13	23.84		
0	75.1			76.3	1 56.20	− 12.42	7 22 44.35	51 30 54.90	24.23		
5	74.4			76.0	26.87	+ 0.23	20 14 26.26	+ 38 39 12.99	23.35		
1	74.2			75.5	42.17	1 39.14	80 49 54.03	− 21 57 11.75	9.24		
9	74.2			75.3	1 23.38	40.45	56 4 10.59	+ 2 49 28.66	16.82		
				75.0							
5	71.9			75.0	42.67	1 39.83	80 50 51.16	− 21 57 11.91	9.17		
0	71.0			74.7	1 23.57	40.80	56 4 10.60	+ 2 49 28.65	16.92		
5	71.1			74.5	− 40.68	+ 32.88	50 24 45.60	8 28 53.65	− 18.85		
				74.5							
0	75.5			76.0	+ 28.87	+ 1 12.64					
0	75.4				30.62	.65					
0	75.5				30.32	.63	327 24 10.38	+ 88 30 31.13	+ 4.48		
0	75.9				30.34	.58					
1	75.8				+ 31.15	− 1 12.60					
4	77.9			73.5	− 2 26.33	+ 1 35.47	79 59 3.34	− 21 5 24.09	− 6.92		
5	65.7			72.0	26.89	0.23	20 14 26.92	+ 38 39 12.33	23.65		
5	65.0			71.0	44.49	1 41.34	80 50 50.73	− 21 57 11.48	9.10		
0	64.5			71.0	1 25.09	41.37	56 4 9.65	+ 2 49 29.60	16.94		
0	63.2			70.5	42.29	33.44	50 24 45.42	+ 8 28 53.83	18.90		
				70.0							
3	74.6			76.0	2 24.90	1 35.71	79 59 5.01	− 21 5 25.79	6.86		
9	73.7			75.6	26.40	0.23	20 14 26.70	+ 38 39 12.55	23.72		
5	73.5			75.4	41.23	1 39.33	80 50 51.49	− 21 57 12.24	9.02		
8	71.5			75.0	2 25.61	1 47.45	82 39 14.34	23 45 35.09	10.24		
				75.0							
0	74.1			75.5	3 22.50	1 47.13	82 48 17.93	23 54 38.68	5.00		
9	74.0			76.0	2 24.18	1 35.43	79 59 6.02	21 5 26.77	6.81		
0	72.5				41.36	1 39.09	80 50 51.16	21 57 11.91	8.94		
				76.0							
5	78.4			76.4	2 24.25	1 35.20	79 59 4.93	− 21 5 25.68	6.78		
0	72.2			75.5	27.65	0.23	20 14 25.15	+ 38 39 14.10	23.86		
0	71.1			75.5	41.03	1 39.95	80 50 52.68	21 57 13.43	8.59		
2	70.5				1 23.16	40.83	56 4 10.95	+ 2 49 28.30	16.96		
5	70.0			74.5	39.07	+ 32.97	50 24 46.43	8 28 52.82	19.01		
				74.5							
2	69.4				1 58.09	− 12.56	7 22 43.23	+ 51 30 56.02	24.88		50. Unsteady.
0	69.0			71.5	2 25.74	+ 1 36.71	79 59 5.39	− 21 5 26.14	6.83		51. Do.
0	67.9			71.0	27.58	0.23	20 14 26.17	+ 38 39 13.08	24.33		52. Do.
5	67.0			71.0	42.56	1 40.57	80 50 51.38	− 21 57 12.13	8.83		
5	66.3			71.0	39.99	33.13	50 24 46.12	+ 8 28 53.13	19.31		
				71.0							
2	70.0			72.5	2 23.97	1 36.60	79 59 6.60	− 21 5 27.35	6.85		
1	69.0			72.5	27.23	0.23	20 14 26.50	+ 38 39 12.75	21.45		
9	67.6			72.0	41.43	1 40.54	80 50 52.34	− 21 57 13.09	8.82		
				72.0							
0	67.0			70.5	− 50.70	+ 25.55	44 19 27.80	+ 14 34 11.45	− 16.17		

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Sept. 12	1	β Draconis	3	. . .	6 29 60.0	48.8	52.8	70.0	42.1	54.9	54.77	32.2190	30.9713	30.126
	2	Nadir	. .	. . .	199 59 60.0	47.5	49.8	71.5	39.9	56.2	54.150	30.8782		
13	3	β Draconis	3	. . .	6 29 59.9	47.9	51.8	70.0	41.1	53.6	54.05	32.1917	30.9597	30.030
	4	Moon, N. L. . . .	3	. . .	78 59 60.0	48.8	52.0	70.1	40.5	53.6	54.17	27.1290		.028
	5	μ Sagittarii	3	. . .	79 59 60.0	48.9	51.9	69.9	40.5	53.5	54.11	33.3102		.028
	6	α Lyræ	3	. . .	20 14 60.0	47.8	52.1	69.9	41.1	53.7	54.10	31.4300		.026
	7	Nadir	. .	. . .	199 59 60.0	48.5	51.8	71.1	40.1	56.5	54.667	30.8749		
16	8	α Lyræ	4	. . .	20 14 59.9	47.0	51.5	67.8	40.7	52.9	53.30	31.4238	30.9707	30.064
	9	Sagittarii, (6507) . .	3	. . .	80 49 60.1	49.5	53.5	70.0	41.1	53.1	54.55	31.6977		.064
	10	δ Aquilæ	3	. . .	56 4 60.0	48.0	52.0	70.8	41.5	54.1	54.40	32.3528		.164
	11	Sagittarii, (6742) . .	3	. . .	75 19 60.0	51.1	55.6	72.8	42.0	53.1	55.77	30.6111		.170
	12	α^2 Capricorni . . .	3	. . .	71 59 60.0	51.4	54.0	71.5	42.1	54.5	55.58	33.2590		.170
	†13	Nadir	. .	. . .	199 59 60.6	50.2	53.2	72.8	41.8	54.5	55.300	30.8959		
17	14	μ^1 Sagittarii	3	. . .	80 0 28 5	19.8	24.6	36.5	12.2	19.8	23.57	33.7787	30.9688	30.120
	15	α Lyræ	3	. . .	20 14 59.9	47.5	54.4	65.4	43.1	50.2	53.42	31.4395		.126
	16	δ Aquilæ	3	. . .	56 4 59.6	47.1	54.2	67.1	43.4	50.5	53.65	32.3502		.120
	17	Nadir	. .	. . .	199 59 60.0	50.3	55.9	69.9	43.9	53.0	55.592	30.8987		
	18		. .	. . .	60.2	50.9	55.9	70.0	44.1	53.0				
21	19	α Cygni	3	. . .	14 9 60.2	51.6	56.8	66.0	46.0	52.5	55.52	32.3110	30.9761	30.241
	†20	β Aquarii	3	. . .	65 4 60.9	49.4	56.0	66.8	44.5	51.0	54.77	29.8410		.242
	21	Neptune	3	. . .	69 19 58.4	49.5	56.0	65.8	44.0	50.9	54.10	32.8582		.245
21	22	Nadir	. .	. . .	199 59 60.0	49.8	55.1	69.2	43.5	54.4	55.333	30.9019	30.9761	
23	23	μ^1 Sagittarii	3	. . .	79 59 56.5	45.5	50.6	60.5	40.7	48.6	50.40	33.2378	30.9749	30.160
	24	α Lyræ	3	. . .	20 14 60.1	46.9	53.2	64.8	43.5	52.9	53.57	31.4455		.156
	†25	δ Aquilæ	3	. . .	56 4 60.0	45.9	52.1	66.3	41.8	52.5	53.10	32.3256		.154
	26	ε Pegasi	3	. . .	49 39 60.0	51.0	55.4	69.2	45.4	55.0	56.00	29.6292		.134
	27	Piscis Australis, (7714)	3	. . .	92 9 60.5	52.5	57.5	70.5	45.0	52.6	56.43	33.3400		.140
	28	Neptune	3	. . .	69 19 60.4	52.0	58.0	70.1	44.5	53.3	56.38	31.8672		.138
	29	Nadir	. .	. . .	199 59 60.5	51.8	55.8	72.0	44.1	55.8	56.575	30.9204		
	30				60.5	51.2	56.0	71.8	44.1	55.1				
24	31	Venus, N. L. . . .	3	. . .	78 34 60.0	49.3	53.1	64.8	43.3	54.1	54.10	31.3048	30.9876	.045
	32	γ Aquilæ	3	. . .	48 39 60.0	47.2	48.1	67.8	41.1	55.9	53.35	33.0674		.050
	33	α Cygni	3	. . .	14 9 60.2	48.0	51.5	65.4	40.8	54.2	53.35	32.2984		.044
	34	Piscis Australis, (7714)	3	. . .	92 9 59.2	49.1	51.0	68.5	40.9	52.8	53.58	33.2321		.040
	35	Neptune	4	. . .	69 19 60.0	49.1	53.0	68.6	41.8	54.5	54.50	31.3348		.044
	36	Nadir	. .	. . .	199 59 60.5	46.6	50.0	68.1	39.8	57.0	53.658	30.8867		
	37				60.4	47.3	49.1	68.2	40.1	56.8				
25	†38	Pallas	3	. . .	57 9 60.9	51.1	52.4	70.5	45.9	59.5	56.72	30.8108	30.9822	29.996
	39	Neptune	3	. . .	69 19 60.0	50.1	53.5	69.5	43.2	57.0	55.55	30.8145		30.010
	40	Nadir	. .	. . .	199 59 59.54	49.40	51.90	70.22	42.52	59.35	55.488	30.9104		
October 1	41	ζ Aquilæ	3	. . .	45 14 59.2	50.6	54.0	71.6	42.7	53.4	55.25	31.6567	30.9600	30.129
	42	δ Aquilæ	3	. . .	56 4 60.0	49.8	54.5	72.4	43.0	54.5	55.70	32.3545		.124
	†43	Neptune	3	. . .	69 24 60.0	54.2	58.5	75.4	45.1	56.1	58.22	32.8470		.100
	44	Nadir	. .	. . .	199 59 59.96	50.10	54.86	73.10	41.36	56.30	55.932	30.8953		
	45				59.50	50.30	54.80	73.20	41.60	56.10				
2	46	Venus, N. L. . . .	3	. . .	81 19 65.1	58.0	60.5	76.3	48.6	59.9	61.40	32.2676	30.9764	29.884
	†47	Piscis Australis, (7714)	3	. . .	92 9 60.0	52.2	55.8	73.0	43.4	55.3	56.62	33.3341		.978
	48	Neptune	3	. . .	69 24 60.2	51.9	56.8	73.0	44.6	56.5	57.17	32.4158		.978
	49	Nadir	. .	. . .	199 59 60.0	49.6	54.7	71.5	43.3	57.8	56.150	30.9152		
3	†50	61^1 Cygni	3	. . .	20 54 59.8	52.5	55.4	72.9	45.0	54.8	56.73	33.5182	30.9661	30.088
	51	Piscis Australis, (7714)	3	. . .	92 9 60.0	54.1	57.9	75.0	45.0	54.2	57.70	33.3990		.100
	52	Neptune	3	. . .	69 24 60.0	54.3	59.1	74.8	46.2	55.1	58.25	32.0174		.100
	53	Nadir	. .	. . .	199 59 59.9	51.8	55.7	74.2	43.3	56.6	57.075	30.9196	31.9661	
	54				60.0	52.3	56.1	74.6	43.9	56.5				
4	55		1	— 19 21.0	327 24 59.5	51.9	58.6	69.6	45.8	52.1		30.0590		30.193
	56		1½	14 21.0								.1710		
	57		2	9 21.0								.2610		.19[illegible]
	58		2½	— 4 21.0								.3270		
	59	· Polaris, S. P. . . .	3	+ 0 39.0							56.31	.3590	30.9748	.18[illegible]
	60		3½	5 39.0								.3390		

THERMOMETERS.					CORRECTIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
	Ex.	St.	Up.	Low.	Inst.	Object.					
	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
8	66.2			70.5	− 1 18.44	− 13.62	6 28 22.71	+ 52 25 16.54	− 24.30		
				70.5						B.	
0	64.0			69.2	− 1 17.45	13.64	6 28 22.96	+ 52 25 16.29	24.31		
0	61.9			67.0	+ 4 0.83	− 30 21.13	78 33 33.87	− 19 39 54.62			
5	60.4			66.5	− 2 27.78	+ 1 38.37	79 59 4.70	− 21 5 25.45	6.86		
5	60.0			66.6	29.57	0.25	20 14 24.78	+ 38 39 14.47	24.65		
				67.5							
2	60.0			66.0	28.61	0.25	20 14 24.94	+ 38 39 14.31	24.79		
2	60.0			64.0	45.70	1 42.05	80 50 50.90	− 21 57 11.65	8.67		
2	58.0			64.0	− 1 26.89	41.90	56 4 9.41	+ 2 49 29.84	17.44		
1	57.8			64.0	+ 22.61	1 23.19	75 21 41.57	− 16 28 2.32	12.05		
0	57.8				− 2 23.87	1 13.56	71 58 45.27	13 5 6.02	14.36		
				64.0							13. Mercury unsteady.
3	63.2			66.5	2 56.65	1 38.13	79 59 5.05	− 21 5 25.80	6.73		
3	61.0			66.0	29.59	0.25	20 14 24.08	+ 38 39 15.17	24.82		
0	57.7			64.2	1 26.85	+ 41.90	56 4 8.70	2 49 30.55	17.43		
				66.0							
2	61.4			67.0	− 1 23.92	− 5.89	14 8 25.71	+ 44 45 13.54	25.99		
6	58.5			66.5	+ 1 11.36	+ 57.85	65 7 3.98	− 6 13 24.73	17.54		20. Very unsteady; one bisection.
5	57.8			65.8	− 1 58.32	1 6.85	69 19 2.63	− 10 25 23.38			
				65.5							
5	68.5			71.0	2 22.23	1 37.23	79 59 5.40	− 21 5 26.15	6.63		
6	66.0			70.5	29.59	0.25	20 14 24.23	+ 38 39 15.02	25.00		
0	63.5			69.6	− 1 24.92	41.46	56 4 9.64	2 49 29.61	17.44		25. Very unsteady.
5	56.0			63.8	+ 1 24.60	32.94	49 41 53.54	+ 9 11 45.71	20.61		
2	57.0			64.5	− 2 28.69	2 56.84	92 10 24.58	− 33 16 45.33	12.42		
0	56.7			65.0	56.10	1 6.81	69 20 7.09	10 26 27.84			
4	78.3			74.0	19.94	1 31.28	78 36 5.44	− 19 42 26.19			
7	69.0			71.5	2 10.75	+ 36.66	48 38 13.26	+ 10 15 25.99	20.07		
2	68.0			71.4	1 22.41	− 5.77	14 8 25.17	+ 44 45 14.08	26.53		
2	67.3			71.5	2 21.11	+ 2 52.72	92 10 25.19	− 33 16 45.94	12.29		
0	67.0			71.4	− 22.01	1 5.28	69 20 37.77	− 10 26 58.42			
				71.0							
0	70.6			73.5	+ 10.78	40.13	57 10 47.63	+ 1 42 51.62			38. Extremely faint.
2	70.0			73.0	+ 10.54	1 4.84	69 21 10.93	− 10 27 31.68			
				73.0							
2	58.5			65.0	− 43.80	27.10	45 14 38.55	+ 13 39 0.70	20.04		
1	58.0			64.5	1 27.67	41.88	56 4 19.91	+ 2 49 29.34	17.54		
1	51.8			60.5	1 58.63	1 7.54	69 24 7.13	− 10 30 27.88			43. Indistinct.
				63.5							
0	70.0			67.5	1 21.76	1 42.58	81 20 22.22	22 26 42.97			
9	58.1			63.0	2 28.22	2 55.54	92 10 23.94	33 16 44.69	11.13		47. Unsteady.
0	56.2			63.0	1 30.49	1 6.70	69 24 33.38	− 10 30 54.13			
				67.0							
5	50.9			61.0	2 40.44	0.13	20 52 16.42	+ 38 1 22.83	29.14		50. Very unsteady.
0	50.0			60.0	2 32.94	2 59.09	92 10 23.85	− 33 16 44.60	11.05		
5	49.6			58.0	− 1 6.09	+ 1 7.88	69 25 0.04	− 10 31 20.79			
				61.0							
				59.5							
2	67.0			63.5	+ 38.23						
					39.92						
5	66.0			63.5	40.42						
					39.87						
.7	66.0			63.5	38.88	− 1 14.01	327 24 21.16	+ 88 30 41.91	− 6.59		
					38.60						

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Oct. 4	1		4	10 39.0								30.2580		30.184
	2		4½	15 39.0								.1850		
	3		5	+ 20 39.0	327 24 59.4	51.8	58.8	69.5	46.6	52.1		.0510		.182
	† 4	Venus, N. L.	3	. . .	81 54 60.0	52.8	56.9	69.6	45.2	53.5	56.33	30.9279	30.9748	30.146
	5	Nadir	. .	. . .	199 59 60.0	50.1	55.8	69.8	44.3	55.1				
	6				59.7	50.5	56.1	70.5	44.7	53.3	55.992	30.9110	30.9748	
	† 7	ε Pegasi	3	. . .	49 39 59.6	52.0	56.0	70.4	46.4	54.8	56.53	29.6390	30.9803	30.130
	† 8	Piscis Australis, (7714)	3	. . .	92 9 60.0	53.0	58.9	71.8	45.9	52.9	57.08	33.3509		.129
	† 9	Neptune	3	. . .	69 24 59.9	52.9	59.5	71.6	46.7	54.5	57.52	31.5303		.130
	10	α Pegasi	3	. . .	44 29 60.0	51.2	56.8	69.2	45.0	52.2	55.73	31.9317		.026
	11	Nadir	. .	. . .	199 59 60.2	52.1	58.2	72.7	45.5	55.3				
	12				60.4	52.5	58.0	72.8	45.6	55.3	57.383	30.9387	30.9803	
5	†13	Venus, N. L.	3	. . .	82 14 60.0	52.2	56.1	68.5	45.0	52.0	55.75	33.2952	30.9711	29.974
	†14	Neptune	3	. . .	69 24 60.0	52.9	57.5	70.0	47.1	54.5	57.00	31.0741		29.942
	15	Nadir	. .	. . .	199 59 60.0	51.5	57.4	69.5	45.5	55.0				
	16				59.9	51.9	57.4	71.0	46.0	54.7	56.650	30.9178	30.9711	
7	†17		1	— 19 33.0								29.9650		30.276
	18		1½	14 18.0								30.1000		
	19		2	9 48.0								.2090		.266
	20		2½	— 4 18.0								.2410		
	21	Polaris, S. P.	3	+ 10.0	327 24 59.9	51.0	58.2	70.9	44.6	53.0	56.27	.2700	30.9597	.270
	22		3½	5 42.0								.2550		
	23		4	10 10.0								.2000		.267
	24		4½	15 42.0								30.1050		
	†25		5	+ 19 54.0								29.9680		30.262
	26	Nadir	. .	. . .	199 59 60.4	52.3	59.1	73.1	44.6	55.1				
	27				60.1	52.5	58.5	73.1	45.9	55.1	57.483	30.9197	30.9597	
	†28	Venus, N. L.	3	. . .	82 44 59.5	53.0	58.2	71.8	44.8	52.0	56.55	30.1339		.264
	†29	ε Pegasi	3	. . .	49 39 60.0	52.9	61.1	72.1	48.0	52.9	57.83	29.6359	30.9299	.262
	30	Piscis Australis, (7714)	3	. . .	92 9 59.1	55.0	62.2	72.9	47.8	49.1	57.68	33.4084		.268
	31	Neptune	3	. . .	69 24 59.4	55.5	64.1	73.0	49.9	51.1	58.83	30.3455		.268
	32	α Piscis Australis	3	. . .	89 14 60.0	57.0	62.2	71.8	49.1	50.0	58.33	30.1705		.268
	33	Nadir	. .	. . .	199 59 60.4	56.2	62.8	74.7	47.6	52.4				
	34				60.5	56.2	62.4	74.8	48.1	52.4	59.042	30.9147	30.9299	
8	†35	Venus, N. L.	3	. . .	83 4 60.0	53.3	62.5	68.2	48.1	49.1	56.87	33.9933	30.9549	30.200
	†36	α Aquarii,	3	. . .	59 54 60.1	53.0	62.8	68.4	48.8	50.2	57.22	30.6320		.174
	†37	Neptune	3	. . .	69 24 60.4	55.7	65.8	71.1	51.0	50.1	59.02	29.9308		.166
	38	Nadir	. .	. . .	199 59 60.0	53.3	61.8	70.0	47.9	50.5	57.250	30.9202	30.9549	
	39		1	— 19 26.0	327 24 59.7	52.9	63.7	67.0	50.4	49.0		30.0500		30.180
	40		1½	14 14.0								.1600		
	41		2	9 36.0								.2510		.176
	42		2½	— 4 14.0								.3050		
	43	Polaris, S. P.	3	+ 20.0							57.41	.3400	30.9640	.170
	44		3½	5 46.0								.3180		
	45		4	10 15.0								.2610		.166
	46		4½	15 46.0								.1550		
	47		5	+ 20 4.0	327 24 60.0	53.4	63.5	70.3	50.3	48.7		.0350		30.166
9	48	Venus, N. L.	3	. . .	83 19 60.3	57.0	62.5	71.1	50.5	52.5				
	49				59.8	54.2	60.1	67.9	49.0	50.4	57.94	33.5549		.131
	50	Nadir	. .	. . .	199 59 60.2	52.5	61.8	67.1	47.0	50.9				
	51				60.3	53.1	61.4	68.1	48.3	51.2	56.825	30.9135	30.9640	
	†52	α Aquarii	3	. . .	59 54 60.0	53.6	61.1	68.6	48.9	52.1	57.38	30.6849	30.9751	.154
	53	Neptune	3	. . .	69 24 60.2	55.9	63.0	71.1	51.0	52.1	58.88	29.5588		.150
	54	α Piscis Australis	3	. . .	89 14 60.0	56.9	61.9	69.9	50.1	51.0	58.30	30.1464		.150
	55	Nadir	. .	. . .	199 59 60.0	52.3	59.4	72.3	46.6	53.0				
	56				59.9	53.4	59.8	70.7	47.6	52.5	57.292	31.9320	30.9751	
10	57	Venus, N. L.	3	. . .	83 34 60.0	54.1	56.5	71.2	46.3	58.8	57.82	33.6296		30.218
12	†58	Sagittarii, (6461)	3	. . .	80 9 59.9	54.0	56.9	71.0	46.1	54.6	57.08	31.1535	30.9675	29.830
	†59	Moon, S. L.	3	. . .	80 4 61.0	55.0	58.8	71.9	48.0	56.5	58.87	30.7395		.832
	†60	α Aquilæ	3	. . .	50 24 60.3	50.5	55.2	69.0	45.3	56.2	56.08	31.6910		.842

HERMOMETERS.				CORRECTIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
Ext.	St.	Up.	Low.	Inst.	Object.					
°	●	◻	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
66.0	•		63.9	+ 39.59					B.	
				37.55						
66.3			64.2	36.68						
67.7			64.5	2.95	+ 1 46.53	81 56 45.81	— 23 3 6.56			4. Unsteady.
			65.0							
52.5			62.0	+ 1 24.33	33.16	49 41 54.02	+ 9 11 45.23	— 21.22		7. Very unsteady.
51.8			61.5	— 2 29.03	2 58.62	92 10 26.67	— 33 16 47.42	10.88		8. Remarkably steady.
51.5			61.2	34.58	1 6.70	69 25 30.64	— 10 31 51.39			9. Beautifully steady.
50.5			61.0	59.81	26.50	44 29 22.42	+ 14 24 16.83	20.75		
71.5			69.5	2 26.11	1 46.42	82 14 16.06	+ 23 20 36.81			13. Beautifully steady.
52.4			65.5	— 6.47	+ 1 5.87	69 25 56.40	— 10 32 17.15			14. Beautifully steady.
52.5				+ 42.73						
				43.47						
52.8				42.28						
				44.51						
52.3			60.0	43.52	— 1 16.22	327 24 23.04	+ 88 30 43.79	7.63		17 to 25. Faint and unsteady.
				42.88						
52.6				42.77						
				42.46						
53.0				42.45						
			61.0							
53.8			62.0	51.92	+ 1 53.73	82 47 42.20	— 23 54 2.95			
41.5			55.0	+ 1 21.35	34.07	49 41 53.25	+ 9 11 46.00	21.32		28. Unsteady.
41.5			54.0	— 2 35.82	3 3.34	92 10 25.20	— 33 16 45.95	10.48		29. Extremely unsteady.
41.1			52.5	+ 36.74	1 9.53	69 26 45.10	10 33 5.85			
39.8			52.5	+ 47.74	2 37.19	89 18 23.26	30 24 44.01	12.39		
			53.0							
			55.0							
59.9			61.0	— 3 11.02	1 53.44	83 3 39.29	24 10 0.04			35. Very unsteady.
45.5			55.5	+ 20.30	49.43	59 56 6.95	1 2 27.70	18.88		36. Extremely unsteady; observation of little value.
45.0			55.0	1 4.38	+ 1 8.73	69 27 12.13	— 10 33 32.88			37. Extremely faint and unsteady.
			55.0							
61.0			59.5	37.95						
				40.10						
61.0			60.5	40.12						
				40.62						
61.5			60.0	39.40	— 1 14.71	327 24 22.08	+ 88 30 42.83	8.39		
				39.16						
61.8			60.1	39.14						
				39.70						
62.0			60.5	+ 38.25						
66.0			64.0	— 2 42.89	+ 1 53.15	83 19 8.20	— 24 25 28.95			
			60.3							
50.0			56.5	+ 18.24	48.95	59 56 4.57	1 2 25.32	18.91		52. Very unsteady.
49.0			56.0	1 29.04	1 8.19	69 27 36.11	10 33 56.86			
48.5			55.5	+ 52.10	2 33.81	89 18 24.21	30 24 44.96	12.15		
			55.5							
70.7			64.0	— 2 46.88	2 53.57	83 34 4.51	— 24 40 25.26			
60.8			63.5	— 11.69	1 38.46	80 11 23.85	21 17 44.60	8.05		58. Very steady.
60.5			63.0	+ 14.33	60 15.78	79 4 57.42	— 20 11 18.17			59. Remarkably steady.
58.5			63.0	— 45.48	+ 33.41	50 24 44.01	+ 8 28 55.24	— 20.19		60. Beautifully steady.

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Oct. 12	1	Neptune	3	. . .	69 24 60.8	54.1	59.2	73.0	46.1	56.9	58.35	28.4134	.	29.876
	2	Nadir	. .	. . .	199 59 59.5	51.3	55.7	72.5	43.8	56.7	56.658	31.9143	30.9675	
	3				59.4	52.0	55.3	73.0	43.9	56.7				
	4	α Cygni	3	. . .	14 9 60.0	52.5	57 5	70.7	45.1	54.7	56.75	32.3728	30.9585	29.912
	5	Moon, S. L. . . .	3	. . .	77 4 60.1	53.1	59.3	72.2	46.1	54.8	57.62	33.3561		.920
14	6	ε Pegasi	3	. . .	49 39 60.0	51.4	57.2	70.2	44.9	55.6	56.55	29.6286		29.931
	† 7	Neptune	3	. . .	69 24 60.0	53.1	59.9	73.4	45.9	55.0	57.88	27.7130		.948
	8	Nadir	. .	. . .	199 59 60.0	52.9	57.6	74.6	44.2	55.8	57.600	30.9203	30.9585	
	9				60.1	53.4	57.6	74.4	44.7	55.9				
15	†10	Venus, N. L. . . .	3	. . .	84 39 61.0	53.1	59.1	72.6	46.2	55.5	57.92	32.1574	30.9736	30.091
	†11	ε Pegasi	3	. . .	49 39 60.6	51.7	57.5	70.4	45.7	55.9	56.97	29.6324		.120
	12	Nadir	. .	. . .	199 59 60.3	50.3	56.6	70.8	43.4	55.3	56.375	30.9159	30.9736	
	13				60.8	51.3	56.7	70.8	44.5	55.7				
	†14	Moon, S. L. . . .	3	. . .	74 19 60.1	52.2	58.9	72.5	45.8	53.8	57.22	33.5465		.120
	†15	Neptune	3	. . .	69 24 60.0	53.1	59.1	72.0	46.2	53.8	57.37	27.4080	30.9508	.110
	16		1	− 19 59.0	330 19 60.0	52.1	60.1	72.7	45.1	53.1		27.384		
	17		2	10 8.0								.130		
	18	Polaris	3	− 8.0							57.54	.042		30.090
	19		4	+ 9 46.0								.105		
	20		5	+ 19 36.0	330 19 59.8	53.9	59.9	74.3	45.6	53.9		27.348		
	21	Nadir	. .	. . .	199 59 60.0	53.5	60.3	71.4	46.2	51.4	57.158	30.9056	30.9508	
	22				59.9	53.6	60.0	71.4	46.4	51.8				
16	23	Venus, N. L. . . .	3	. . .	84 49 59.8	52.5	60.6	70.9	49.0	53.5	57.72	30.5206	30.9703	30.036
	24	Neptune	3	. . .	69 24 61.0	53.4	60.1	71.0	48.1	54.8	58.07	27.0499		.060
	†25	Flora	3	. . .	71 4 60.0	51.1	57.8	68.9	47.0	53.6	56.40	33.7204		.000
	26	Nadir	. .	. . .	199 59 59.9	50.0	56.9	69.4	45.2	55.0	56.125	30.9087	30.9703	
	27				59.7	50.2	56.8	69.8	45.5	55.1				
19	28	Neptune	3	. . .	69 24 58.5	54.8	61.0	71.9	48.2	53.0	57.90	26.1871	30.9582	29.830
	29	Nadir	. .	. . .	199 59 60.0	53.9	59.5	74.0	45.9	55.9	58.775	30.9387	30.9582	
	30				61.0	55.2	60.4	74.9	48.0	56.6				
21	†31	Neptune	4	. . .	69 24 59.8	56.0	62.1	74.5	48.6	53.5	59.08	25.6185	30.9571	30.040
	†32	Flora	3	. . .	71 4 59.9	55.5	62.0	72.9	48.8	52.9	58.67	32.8653		.036
	†33	Nadir	. .	. . .	199 59 60.0	54.2	60.7	73.5	46.4	53.9	58.208	30.9286	30.9571	
	†34				59.9	54.9	60.6	73.4	47.1	53.9				
22	35	Nadir	. .	. . .	19 59 60.1	53.1	61.0	69.1	47.7	51.7	57.067	30.9251	30.9717	
	36				60.0	53.5	60.0	69.0	48.0	51.6				
	†37	Venus, N. L. . . .	3	. . .	85 49 59.8	53.8	62.2	69.5	50.6	49.5	57.57	31.9168		29.880
	38	61¹ Cygni	3	. . .	20 49 60.1	53.9	60.3	67.9	50.1	51.0	57.22	28.7953		.872
	†39	Neptune	3	. . .	69 29 60.8	54.9	63.4	68.9	51.3	52.1	58.57	30.1182		.870
	40	Nadir	. .	. . .	199 59 60.0	52.0	59.7	69.1	47.7	52.6	56.850	30.9394	30.9895	
	41				59.7	52.6	59.1	69.2	48.0	52.5				
	†42	Flora	3	. . .	71 4 60.4	53.1	61.1	68.9	49.9	52.4	57.63	32.4211		.860
28	†43	Venus, S. L. . . .	3	. . .	86 29 59.5	55.6	62.9	72.0	51.1	53.5	59.10	32.6362		
	†44	Venus, N. L. . . .	3	. . .	. . .	--	--	--	--	--	. .	33.1978	30.9802	30.156
	45	Nadir	. .	. . .	199 59 60.0	52.9	60.6	68.9	49.3	53.1	57.47	30.9400	30.9802	
	†46	Neptune	3	. . .	69 29 59.8	54.9	62.5	69.3	51.1	52.8	58.40			.100
29	†47	Venus, N. L. . . .	3	. . .	86 34 59.1	52.9	56.2	72.5	45.8	54.2	56.78	33.6613		
	†48	Venus, S. L. . . .	3	. . .	. . .	--	--	--	--	--	. .	33.0968	31.0147	30.214
	49	Nadir	. .	. . .	199 59 60.2	53.3	57.4	72.0	47.3	55.3	57.783	30.9794	31.0147	
	50				61.4	53.4	57.5	72.3	47.9	55.4				
	†51	61¹ Cygni	3	. . .	20 49 60.8	54.2	57.4	72.2	49.0	54.5	58.02	28.8520		.240
	†52	Neptune	3	. . .	69 29 60.0	56.9	59.1	77.9	47.4	55.9	59.53	28.7047	31.0217	.246
	53	Nadir	. .	. . .	199 59 60.53	54.22	58.08	74.03	46.58	56.42	58.310	30.9950	31.0217	
30	†54	Neptune	3	. . .	69 29 60.2	57.2	58.9	77.0	47.5	56.3	59.52	28.5257	31.0272	30.222
	55	Nadir	. .	. . .	199 59 60.07	53.13	57.40	74.10	45.53	55.90	57.688	30.9904	31.0272	
31	†56	Venus, N. L. . . .	3	. . .	86 39 60.0	64.8	62.6	80.8	55.1	56.9	63.37	31.3181		
	†57	Venus, S. L. . . .	3	. . .	. . .	--	--	--	--	--	. .	30.7875	31.0258	30.204
	58	Nadir	. .	. . .	199 59 59.6	62.1	60.0	80.3	52.2	57.4	61.058	31.0585	31.0258	
	59				59.5	62.7	59.9	81.0	52.1	57.9				
	60	61¹ Cygni	3	. . .	20 49 60.0	63.2	59.2	79.0	54.0	56.8	62.03	28.9325		30.210

No. for ref.	THERMOMETERS. At.	Ext.	St.	Up.	Low.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
	°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
1	61.0	56.5			61.0	+ 2 40.57	+ 1 6.61	69 28 45.53	− 10 35 6.28		B.	
2					61.0							
3												
4	61.5	54.0			61.0	− 1 28.92	− 5.91	14 8 21.92	+ 44 45 17.33	− 29.05		
5	61.0	54.0			61.0	− 2 30.73	− 58 36.67	76 3 50.22	− 17 10 10.97			
6	60.2	53.2			60.8	+ 1 23.61	+ 32.91	49 41 53.07	+ 9 11 46.18	21.63		
7	59.5	52.0			59.4	+ 3 24.04	1 7.40	69 29 29.32	− 10 35 50.07			7. Steady and well defined.
8					60.0							
9												
10	64.5	65.5			64.5	− 1 14.36	1 59.80	84 40 43.36	− 25 47 4 11			10. Unsteady.
11	62.0	51.5			61.0	+ 1 24.32	+ 33.22	49 41 54.51	+ 9 11 44.74	21.61		11. Do.
12					62.5							
13												
14	61.6	51.0			61.0	− 2 41.75	− 57 24.44	73 19 51.03	− 14 26 11.78			14. Do.
15	60.5	50.2			60.0	+ 3 42.73	+ 1 8.01	69 29 48.11	− 10 36 8.86			15. Unsteady and faint.
16	59.9	47.2				4 5.04						
17	58.0	47.0				5.35						
18	57.5	46.9			54.0	5.76	− 1 8.95	330 22 54.32	+ 88 30 44.93	11.04		
19	57.0	46.7				6.55						
20	56.5	46.5				4 5.94						
21					59.0							
22												
23	67.0	72.0			67.0	28.27	+ 1 59.14	84 52 25.13	− 25 58 45.88			
24	65.4	62.0			64.5	+ 4 6.47	1 6.35	69 30 10.89	10 36 31.64			
25	64.6	60.0			63.5	− 2 52.92	1 3.42	71 3 6.90	12 9 27.65			25. Remarkably steady.
26												
27												
28	57.8	48.0			56.0	+ 4 59.95	1 7.73	69 31 5.58	10 37 26.33			
29					57.9							
30												
31	52.2	46.4			54.0	+ 5 35.48	1 8.49	69 31 43.05	10 38 3.80			31. Remarkably steady; three bisections.
32	51.8	42.9			53.0	− 1 59.96	1 6.20	71 4 4.91	12 10 25.66			32. Faint but steady.
33					54.0							
34												33, 34. Mercury unsteady.
35					61.0							
36					59.5							
37	61.0	66.0			63.0	− 59.42	2 5.29	85 51 3.44	− 26 57 24.19			37. Three bisections.
38	60.5	57.1			60.0	+ 2 16.82	0.87	20 52 14.91	+ 38 1 24.34	31.01		
39	60.2	53.4			59.5	+ 54.78	1 7.13	69 32 0.48	− 10 38 21.23			39. Remarkably steady.
40												
41					59.0							
42	60.0	51.9				− 1 30.00	1 4.49	71 4 32.12	12 10 52.87			42. Very steady.
43						1 44.11	1 55.16	86 30 19.15	27 36 13.33			43, 44. Applied cor. 0″.22 for defective illumination of south limb, three bisections of north limb, two of south limb.
44	59.3	61.1			59.5	− 2 19.42	1 55.33	86 29 35.01				
45					59.5							
46	57.5	50.6			55.5	+ 2 15.89	1 8.09	69 33 22.38	10 39 43.03			46. Misty star indistinct.
47						− 2 46.39	1 57.15	86 34 7.54	− 27 40 46.12			47, 48. Corrected for defective illumination of south limb 0″.21, three bisections of north limb, and two of south limb.
48	59.1	55.0			59.0	− 3 10.90	1 57.42	86 34 43.20				
49					59.0							
50												
51	57.0	46.2			55.0	+ 2 15.96	0.90	20 52 14.88	+ 38 1 24.37	31.35		51. Unsteady and faint.
52	52.5	43.4			54.0	2 25.67	1 9.45	69 33 34.65	− 10 39 55.40			52. Do. do.
53					54.0							
54	53.5	44.0			53.5	+ 2 37.27	1 9.31	69 33 46.10	10 40 6.85			54. Very faint.
55					51.5							
56						− 18.38	1 56.24	86 41 41.23	− 27 48 18.78			56, 57. Remarkably steady; corrected south limb for defective illumination 0″.19, three bisections of north limb, two of south limb.
57	57.6	59.6				+ 14.98	1 56.49	86 42 14.84				
58												
59					56.5							
60	57.5	52.7				+ 2 11.60	+ 0.89	20 52 14.52	+ 38 1 24.73	− 31.31		

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Oct. 31	1	Neptune	3	- - -	69 29 60.0	65.1	62.5	80.5	55.1	56.5	63.28	28.3868	31.0205	30.216
	2	Nadir	- -	- - -	199 59 59.93	64.56	60.70	80.27	54.63	56.50	62.765	31.0645	31.0205	
	†3	Victoria	3	- - -	52 39 60.8	64.3	61.1	80.8	55.2	57.5	63.28	32.6235		.228
	4	Flora	3	- - -	70 44 61.0	65.1	62.1	81.1	55.9	58.5	63.95	31.4133		.230
Nov. 1	†5	Venus, N. L. . . .	3	- - -	86 44 72.8	78.2	74.2	94.4	69.5	70.9	76.67	33.4996		
	†6	Venus, S. L. . . .	3	- - -	- - -	--	--	--	--	--	- -	32.9115	31.0344	30.200
	7	Neptune	3	- - -	69 29 60.3	66.9	63.0	81.1	56.9	59.1	64.55	28.2486		.235
	8	Nadir	- -	- - -	199 59 59.9	62.26	59.10	80.30	53.20	58.66	62.217	31.0702	31.0344	
2	†9	Neptune	3	- - -	69 34 60.1	64.1	61.0	79.2	55.0	57.9	62.88	32.8574	31.0222	30.250
	10	Nadir	- -	- - -	199 59 60.00	60.83	58.43	78.0	58.37	58.63	62.377	31.0600	31.0222	
4	†11	Neptune	3	- - -	69 34 60.5	64.2	60.1	79.6	54.5	58.2	62.85	32.5879	31.0302	.294
	12	Flora	3	- - -	70 29 60.0	62.8	58.0	77.8	52.9	57.8	61.55	34.0011		.298
	13	Nadir	- -	- - -	199 59 60.1	62.9	59.4	78.8	53.9	57.8	62.150	31.0644	31.0302	
	14	Polaris	2	—10 1.0	330 24 60.8	63.8	62.8	80.9	55.1	59.1	63.84	32.212		
	15		2½	— 1 26.0								.126		
	16		3	+ 3.0								.125		30.290
	17		3½	0 34.0								.124		
	18		4	+ 9 55.0	330 24 60.9	63.9	62.7	81.5	55.4	59.2		32.221		
5	† 9	Neptune	3	- - -	69 34 60.2	66.2	61.2	83.5	55.0	58.9	64.15	32.5140		30.328
	20	Nadir	- -	- - -	199 59 60.0	64.3	60.9	81.2	53.6	58.4	63.067	31.0656	31.0168	
6	21	Nadir	- -	- - -	199 59 60.2	61.6	58.8	79.4	52.5	59.4	61.983	31.0558	31.0243	
	†22	Neptune	3	- - -	69 34 60.0	62.2	59.1	79.5	53.1	58.1	62.00	32.3758		30.162
	†23	α Piscis Australis . .	3	- - -	89 24 60.0	62.3	59.0	77.4	53.1	57.5	61.55	39.6893		
	24	α Pegasi	3	- - -	44 29 60.5	62.0	58.9	77.0	53.6	56.6	61.43	32.1180		30.166
	25	ι Piscium	3	- - -	54 4 60.0	62.2	58.3	77.1	53.3	56.1	61.17	32.1373		.162
	†26				70 54 60.9	62.6	60.1	79.9	54.1	58.5	62.68	35.7746		
7	†27	Neptune	3	- - -	69 34 59.9	65.1	61.2	82.5	53.4	59.0	63.52	32.3469	31.0298	.250
	28	Nadir	- -	- - -	199 59 60.2	64.4	60.9	82.5	53.1	58.9	63.333	31.0828		
	29	ι Piscium	3	- - -	54 4 59.5	63.9	59.1	80.2	52.1	56.7	61.92	32.1658		.250
8	30	δ Ursæ Minoris . . .	3	- - -	344 4 63.5	67.5	64.8	85.9	57.2	62.1	67.18	27.9588	31.0123	.128
9	†31	Nadir	- -	- - -	199 59 60.1	64.0	60 2	82.7	52.7	59.3	63.225	31.0636		
	†32				60.0	64.3	60.0	83.1	52.8	59.5				
	33	α Lyræ	3	- - -	20 14 59.0	63.4	59.8	80.5	52.6	57.1	62.07	31.5622		.162
	†34	α Aquarii	3	- - -	59 54 60.0	65.1	61.8	82.9	54.3	59.1	63.87	30.8258	31.0187	.200
	†35	Neptune	3	- - -	69 34 60.0	65.4	62.1	84.6	54.5	58.7	64.22	32.2414		.204
	†36	Victoria	3	- - -	53 29 60.0	65 9	60.5	84.3	54.1	57.4	63.70	30.7240		.204
	37	Nadir	- -	- - -	199 59 60.0	67.4	62.2	86.9	54.0	57.8	64.717	31.0937	31.0187	
10	†38	Neptuno	3	- - -	69 34 60.0	66.1	61.2	83.3	54.8	57.9	63.88	32.1838	31.0381	.264
	†39	Polaris, S. P. . . .	1	—20 19.0	327 24 60.0	66.6	61.5	84.1	55.9	58.1	64.43	29.916		
	40		2	10 25.0								30.159		.160
	41		3	— 0 27.0								30.256		
	†42		4	+ 9 26.0	327 24 60.5	66.8	61.3	84.0	55.1	58.2		30.209		
	†43	Nadir	- -	- - -	199 59 60.7	66.7	61.5	85.4	54.0	60.0	64.717	31.1131	31.0381	
12	44	Mercury, N. L. . .	3	- - -	73 34 60.0	64.6	60.5	84.5	50.5	57.5	62.93	31.5277	31.0506	.039
13	†45	Venus, N. L. . . .	3	- - -	86 39 60.3	64.5	62.9	81.5	52.8	58.5	63.42	31.9395		.020
	†46	Venus, S. L. . . .	3	- - -	- - -	--	--	--	--	--	- -	31.2749		
	47	Nadir	- -	- - -	199 59 59.9	64.3	60.2	80.5	53.9	58.1	62.817	31.0954	31.0506	
	†48	Neptune	3	- - -	69 34 60.0	66.5	61.8	84.9	55.3	59.1	64.60	32.1380	31.0483	.034
	49	Weisse, XXIII-602 .	3	- - -	53 44 60.5	66.9	60.0	84.1	54.9	58.1	64.08	28.8582		
	50	Flora	3	- - -	69 34 60.0	67.0	62.5	85.5	55.9	58.9	64.97	32.6193		30.044
	51	Nadir	3	- - -	199 59 59.8	66.1	60.5	84.9	53.2	58.9	63.90	31.1103	31.0483	
14	†52	Venus, S. L. . . .	3	- - -	86 34 60.2	63.8	61.9	83.5	54.9	59.0	63.88	29.7653	31.0627	.072
	†53	Venus, N. L. . . .	3	- - -	- - -	--	--	--	--	--	- -	30.4197		
	†54	Neptune	3	- - -	69 34 60.0	66.2	61.5	83.5	55.8	59.4	64.40	32.1367		.062
	55	Nadir	- -	- - -	199 59 59.8	64.5	60.2	82.3	53.8	58.1	63.117	31.1123	31.0627	
	56	Weisse, XXIII-602 .	3	- - -	53 49 59.8	65.1	60.3	79.9	54.4	56.5	62.67	33.5843		.060
	†57	α Cassiopeae . . .	3	- - -	3 9 60.0	65.2	61.3	81.3	55.0	58.1	63.65	30.4566		.066
	†58	Polaris	1	— 19 19.0								27.718		
	59		2	— 9 27.0								.495		
	60		3	+ 0 27.0	330 19 60.0	65.1	61.9	83.8	54.2	59.0	64.00	.410	31.0627	.060

THERMOMETERS.				CORRECTIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
Ext.	St.	Up.	Low	Inst.	Object.					
°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
49.5			56.0	+ 2 45.58	+ 1 8.53	69 33 57.39	— 10 40 18.14		B.	
			56.0							
49.0			56.0	— 1 40.78	33.99	52 38 56.40	+ 6 15 17.24			3. Very faint.
49.0			56.0	24.69	1 5.38	70 45 44.64	— 11 52 5.39			
				2 34.98	1 55.07	86 44 36.76	27 51 16.12			5, 6. Cor'n for def. ill. of S. limb 0″.18, three bisections of N. L., two of S. L.
64.2			61.5	— 1 58.01	1 55.31	86 45 13.97				
54.5			58.0	+ 2 55.13	1 7.90	69 34 7.58	10 40 28.33			
58.5										
53.2			60.0	— 1 55.38	1 8.10	69 34 15.60	10 40 36.35			9. Remarkably steady.
			60.0							
56.1			62.0	1 37.93	1 7.82	69 34 32.74	10 40 53.49			11. Steady, but faint.
53.7			61.0	3 6.77	+ 1 4.29	70 27 59.07	11 34 19.82			
			61.0							
				1 8.88						
				8.69						
52.0			57.5	8.75	— 1 8.71	330 22 46.14	+ 88 30 53.11	— 18.31		
				8.68						
				1 9.93						
53.0			60.0	1 34.12	+ 1 8.32	69 34 38.35	— 10 40 59.10			19. Very steady, but faint.
			59.0							
			63.0							
57.1			62.0	1 24.97	1 7.40	69 34 44.43	10 41 5.18			22. Steady, but faint.
				9 4.75	2 31.43	89 18 28.23	— 30 24 48.98	8.28		23. Observed with mic. wire 4; cor. for reduction to wire 3 = —r.0.0128.
56.5			62.5	1 8.76	26.32	44 29 18.99	+ 14 24 20.26	22.21		
56.1				1 9.97	39.09	54 4 30.29	+ 4 49 8.96	18.45		
			62.0	4 57.95	1 10.89	70 51 15.62	— 11 57 36.37	13.79		26. Supposed to be Flora; very faint.
46.6			56.5	1 22.81	1 9.04	49 34 49.75	— 10 41 10.50			27. Steady, but faint.
			55.0							
45.0				— 1 11.42	+ 40.49	54 4 30.59	+ 4 49 8.66	— 18.45		
51.1			55.0	+ 3 11.92	— 42.19	344 7 36.91	74 46 2.34	+ 4.56		
			56.5							31, 32. High wind; mercury unsteady.
54.2			57.0	— 34.57	+ 0.24	20 14 27.74	38 39 11.51	— 21.24		
43.0			51.5	+ 12.13	49.74	59 56 5.74	+ 1 2 26.49	17.93		34. Unsteady, and very misty.
41.9			51.5	— 1 16.87	1 9.63	69 34 56.98	— 10 41 17.73			35. Unsteady, and faint.
38.6			49.0	+ 18.53	36.21	53 30 58.48	+ 5 22 40.77			36. Do. do.
			48.5							
38.3			51.0	— 1 12.03	+ 1 10.26	69 35 2.11	— 10 41 22.86			38. Very misty.
										39 to 42. Mic. reading of vertical wire 4 rejected; star almost invisible.
42.0			50.5	+ 49.92	— 1 17.62	327 24 36.73	+ 88 30 57.42	20.74		
			51.0							43. Mercury very unsteady.
53.5			56.0	+ 32.87	+ 1 15.71	73 36 51.51	— 14 43 12.26			
56.8			56.0	— 55.88	1 52.35	86 40 59.89	27 47 41.62			45, 46. Cor'n for def. ill. of S. limb 0″.11, three bisections of N. L., two of S. L.
				14.10	1 52.53	86 41 41.85				
			56.0							
45.0			52.0	— 1 8.51	1 8.80	69 35 4.89	— 10 41 25.64			48. Well defined, but unsteady.
42.8			50.0	+ 2 17.69	39.58	53 48 1.35	+ 5 5 37.90	18.78		
42.8			50.5	— 1 38.77	1 3.53	69 34 29.73	— 10 40 50.48			
			50.0							
57.5			56.5	+ 1 21.70	1 51.90	86 38 17.48	27 44 17.50			52, 53. Cor. for def. illum., 0″.10. Three bisections of N. L., two of S. L.
				+ 1 40.42	1 51.72	86 37 36.02				
45.1			53.5	— 1 7.52	1 8.83	69 35 5.71	— 10 41 26.40			54. Well defined and steady.
			51.0							
42.5			51.0	— 2 38.52	+ 39.64	53 48 3.79	+ 5 5 35.46	18.71		
41.8			52.0	+ 38.10	— 17.95	3 10 23.80	55 43 15.45	25.28		
				+ 3 49.43						57, 58. Very unsteady.
				49.06						
41.0			51.0	49.93	— 1 9.75	330 22 44.25	+ 88 30 55.00	— 21.85		

OBSERVATIONS

WITH

THE MERIDIAN CIRCLE,

1849.

NATIONAL OBSERVATORY.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THERM. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ″ ″	″	″	″	″	Wire	Revs.	In.	°	°
Jan. 2	1	γ^1 Eridani	48.0	59.0	10.5	21.7	33.2	44.4	56.0	3 51 21.83										
	2	α Tauri	----	----	26.0	38.0	49.0	0.9	11.9	4 27 49.16										
	3	α Aurigæ	8.0	23.0	39.0	----	10.4	26.5	42.0	5 5 54.87										
	4	β Tauri	30.0	42.5	55.4	7.3	20.0	32.7	45.0	5 17 7.56										
	†5	δ Orionis	7.5	18.7	29.0	40.0	51.0	2.1	13.0	5 24 40.17										
	6	α Lyræ	27.0	41.0	55.1	8.9	23.0	37.3	51.3	18 32 9.09										
4	†7	α Ceti	13.5	24.5	35.5	46.3	57.4	8.3	19.2	2 54 46.39										
	8	α Persei	6.8	24.0	40.1	57.0	14.1	31.0	47.9	3 13 57.27										
	†9	Moon 1st & S. L.	20.0	31.3	42.9	54.4	6.2	17.7	29.2	3 17 54.53	334 7 57.7	57.5	56.1	62.1	58.35	II.	39.000	29.872	36.0	23.7
	10	η Tauri	18.4	30.0	42.1	54.1	6.0	18.1	30.0	3 38 54.10	344 45 17.5	18.5	15.9	22.9	18.70	IV.	39.009	29.868	34.7	23.4
	11	λ Tauri	8.8	20.0	31.2	42.4	53.5	5.0	16.0	3 52 42.41	339 9 5.6	5.5	4.4	8.8	6.08		42.325	29.864	33.2	23.2
	12	α Aurigæ	8.1	23.2	40.2	55.7	11.7	27.1	43.2	5 5 55.60	6 56 63.1	56.0	57.7	65.1	60.48		39.187	29.856	33.5	23.0
	13	β Tauri	31.0	43.5	55.8	8.1	21.0	33.2	45.9	5 17 8 36	349 35 31.2	27.9	26.4	34.0	29.88		39.130	29.964	32.4	22.9
	14	α Columbæ	55.4	9.0	22.4	35.5	49.0	2.0	15.4	5 34 35.53										
	†15	α Orionis	----	----	12.2	23.4	34.5	45.4	56.4	5 47 34.38										
	16	δ Ursæ Minoris, S. P.						56.0	52.0		54 29 63.9	54.5	57.0	61.5	59.23		38.419			
	17						1.5										38.419			
	18					11.0				6 21 6.93							38.408	29.870	30.8	22.8
	19				14.0												38.408			
	20		21.0	13.0													38.421			
	†21	α Canis Majoris	19.0	30.9	42.0	53.4	5.2	16.4	28.0	6 38 53.56	304 36 3.4	1.3	1.0	7.0	3.18		41.715			
	†22	ε Canis Majoris	28.2	41.2	53.3	5.9	18.6	31.0	44.0	6 53 6.03	292 20 54.7	52.3	54.5	60.0	55.38		42.809	29.872	30.2	22.5
10	†23	γ Ceti	21.5	32.7	43.4	54.5	5.8	16.7	27.5	2 35 54.59										
	†24	α Ceti	16.2	27.1	38.3	49.2	0.0	11.0	22.0	2 54 49.11										
	25	α Persei	9.8	26.9	43.7	0.0	17.0	34.0	50.6	3 14 0.29										
	26	η Tauri	----	33.0	45.1	56.9	9.0	20.9	33.0	3 38 62.98										
	†27	γ^1 Eridani	51.9	3.0	14.0	25.5	36.9	48.0	59.1	3 51 25.49										
	†28	α Tauri	7.4	19.0	30.4	41.5	53.2	4.9	16.0	4 27 41.77										
11	†29	γ^1 Eridani	52.0	3.2	14.4	25.4	37.0	48.3	59.4	3 51 25.67										
	†30	α Tauri	8.0	19.1	30.7	41.4	53.4	5.0	16.2	4 27 41.97										
	31	α Aurigæ	11.8	27.9	44.2	59.4	15.7	31.0	46.4	5 5 59.49										
	32	β Tauri	33.9	47.2	59.0	11.7	23.8	36.4	49.2	5 16 11.67										
	33	δ Orionis	----	----	33.4	44.0	55.4	6.0	17.0	5 24 55.16										
	†34	ε Orionis	26.9	37.5	48.9	59.7	10.4	21.0	33.0	5 28 59.63										
	35	α Columbæ	----	12.6	25.4	38.5	51.4	5.1	18.5	5 34 45.25										
	36	α Orionis	53.2	4.7	15.0	26.3	37.5	48.8	59.8	5 47 26.47										
18	37	α Cygni	53.0	8.5	23.9	39.2	54.4	10.2	26.0	20 36 39.31										
	†38	γ Ceti	20.4	32.3	43.0	53.4	4.2	15.5	26.6	2 35 53.63	323 42 3.5	8.1	10.4	6.5	7.13		40.427	30.676	43.8	23.5
	†39	α Ceti	----	27.0	37.5	48.0	59.8	10.7	21.8	2 54 54.13	324 35 53.4	55.7	62.5	55.4	57.36		40.430	30.654		23.2
	40	α Persei	8.9	25.9	42.5	59.0	16.2	33.0	49.8	3 13 59.33										
	41	η Tauri	20.4	32.4	44.5	56.0	8.1	20.0	32.0	3 38 56.20	344 44 59.2	59.9	64.0	62.8	61.49		38.616	30.650	36.0	22.7
	42	γ^1 Eridani	50.4	2.0	13.2	24.2	35.7	47.5	58.7	3 51 24.53	307 11 51.2	49.7	59.5	56.0	54.10		37.659	30.656	34.2	22.5
	†43	α Tauri	6.0	17.9	29.5	40.6	52.0	3.9	15.0	4 27 40.70										
	†44	β Tauri	33.2	45.5	57.9	10.0	22.9	35.5	47.2	5 17 10.31										
	45	δ Orionis	10.5	21.2	32.0	43.0	54.3	5.2	16.0	5 24 43.17										
	†46	ε Orionis	----	37.0	47.2	58.3	9.4	20.4	31.3	5 28 63.93										
	†47	α Orionis	52.4	3.5	14.4	24.9	36.5	47.4	58.7	5 47 25.40										
	48	δ Ursæ Minoris, S. P.	----	56.0	4.0	9.0	11.4	19.0	21.2	6 22 40.10										
	49	α Canis Majoris	21.2	33.0	44.4	55.6	7.0	19.0	30.2	6 38 55.91										
22	50	α Ophiuchi	46.2	57.4	8.8	19.7	31.0	42.3	53.4	17 28 19.83										
23	†51	Sun 1st L.	40.0	52.3	3.5	14.1	26.7	38.3	50.0	20 23 14.99										
	†52	Sun 2d L.	58.3	10.2	22.0	33.2	45.0	56.7	8.4	20 25 33.40										

Date.		Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. Coin. At	
	h.	s.	s.	s.	s.	s.	″	h.	revs.
Jan, 2,	5	f 19.496	g 0.019	− 1.355	+ 0.852	− 0.694			
4,	5	20.412	.019				−0.06		
10,	4	23.430	.004						
11,	5	23.549	.004						
18,	5	22.611	.002				−1.32		
23,	4	23.645	.018						

1 rev. = 34″.515.

Jan. 2, 4h. Adjusted the head of microscope A.

4. Commenced using micrometer wire instead of the fixed wire in observing for nadir point, and in all observations for declination.

Jan. 8. Raised the instrument out of the Y's. Reversed it, and observed for errors of level and of collimation, and for difference of pivots.

Jan. 10, at 22h. Restored the instrument to its usual position, circle east, and took down reversing apparatus.

COR. IN R. A.		COR. IN DECL.		Corrected Readings.	Mic. Zero.	OBSERVED.		REDUCTION TO 1850.0.		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″					° ′
2.28	— 19.47					3 51 0.08	— 13 57	+ 2.09			Jan. 4			180 0
13.22	19.48					4 27 16.46	+ 16 12	2.47		39″7	40″0	34″9	40″0	38″65
1.51	19.49					5 5 33.87	45 50	2.84		40.1	39.9	34.8	39.8	38.65
1.68	19.50					5 17 46.38	+ 28 28	2.59		40.4	40.4	36.3	42.0	39.78
2.05	19.50					5 24 18.62	— 0 25	2.05		39.6	39.8	35.4	40.9	38.92
1.56	19.75					18 31 47.78	+ 38 39	3.84		40.4	41.9	35.0	40.7	39.50
2.09	20.37					2 54 23.93	3 29	2.64		39.8	40.3	35.0	39.8	38.72
1.43	20.38					3 13 35.46	49 19	2.86		41.4	42.0	36.3	41.7	40.35
1.91	20.38	—15 18.86	+52 7.00	334 44 46.49	40.137	3 18 42.42	13 38 25.74							
1.74	20.39	— 38.93	— 16.72	344 44 23.05		3 38 31.97	23 38 2.30	2.67	+ 15.89	40.20	40.61	35.39	40.70	39.23
														—0.01
1.88	20.39	+ 1 15.52	— 31.01	333 9 50.58		3 52 20.14	12 3 29.83	2.50	18.43					
1.47	20.41	— 32.79	+ 7.47	6 55 35.16		5 5 33.72	45 50 14.41	2.84	8.68		Mic.	39.000	—7	rdgs.
1.69	20.41	34.76	— 11.32	349 34 43.80		5 16 46.26	+ 28 28 23.06	2.58	+ 11.01					
2.79	20.42					5 34 12.33	— 34 10	0.84						
12.97	20.43					5 47 0.98	+ 7 22	2.16						
		58.23	+ 1 25.87	54 30 26.87										
		59.17	25.87	25.93										
2.74	20.44	59.02	25.87	26.08		6 20 43.75	+ 86 35 54.39	1.03	— 4.39					
		59.20	25.87	25.90										
		— 58.05	25.87	27.05										
2.34	20.44	+ 54.47	1 28.84	304 35 28.81		6 38 30.78	— 16 30 51.94	1.39	+ 7.00					° ′
2.62	20.45	+ 1 32.22	2 28.35	292 19 59.25		6 52 42.96	— 28 46 21.50	0.90	6.97		Jan.	18.		179 59
2.01	23.43					2 35 29.15	+ 2 36	2.76		58.8	59.0	63.5	57.7	59″75
2.00	23.43					2 54 23.68	3 29	2.68		58.6	58.4	63.4	57.9	59.57
1.43	23.43					3 13 35.43	49 19	2.93						
7.72	23.43					3 38 31.83	+ 23 38	2.69		58.70	58.70	63.45	57.80	59.66
2.28	23.43					3 50 59.78	— 13 57	2.13						
1.83	23.43					4 27 16.51	+ 16 12	2.47			Mic.	39.396	—10	rdgs.
2.28	23.54					3 50 59.85	— 13 57	2.14						
1.83	23.54					4 27 16.60	— 16 12	2.48						
1.47	23.55					5 5 34.47	+ 45 50	2.84						
1.69	23.55					5 16 46.43	+ 28 28	2.56						
12.98	23.55					5 24 18.63	— 0 25	2.01						
2.06	23.55					5 28 34.02	1 18	1.98						
9.41	23.55					5 34 12.29	— 34 10	0.86						
1.94	23.55					5 47 0.98	+ 7 22	2.13						
1.49	22.58					20 36 15.24	44 45	3.55						
2.01	22.61	+ 35.95	46.16	323 41 56.93	39.386	2 35 29.01	2 35 36.18	2.88	24.77					
7.49	22.61	+ 36.02	44.66	324 35 48.74		2 54 24.03	3 29 27.99	2.80	24.00					
1.43	22.61					3 13 35.29	49.19	3.12						
1.74	22.61	— 26.58	17.18	344 44 17.71		3 38 31.85	+ 23 37 56.96	2.81	15.97					
2.28	22.61	— 59.63	— 1 22.97	307 9 31.51		3 51 59.64	— 13 56 49.24	2.25	26.75					
1.83	22.61					4 27 16.26	+ 16 12	2.56						
1.69	22.61					5 16 46.01	+ 28 28	2.62						
2.05	22.61					5 24 18.51	— 0 25	2.06	+ 16.40					
7.54	22.61					5 28 33.78	— 1 18	2.03						
1.94	22.61					5 47 0.85	+ 7 22	2.16						
95.05	22.61					6 20 42.44	+ 86 36	0.22						
2.34	22.61					6 38 30.96	— 16 31	1.35						
1.87	23.46					17 27 54.50	+ 12 40	+ 3.87						
2.39	23.51													
2.39	— 23.51					20 23 58.29								

Object.	COR. IN R. A.	Observed Semi-diam.	
	Semi-diam.	Hor.	Vertical.
	m. s.	m. s.	′ ″
oon -	+ 1 10.18		
n - -	- - - -	1 9.20	

5, 29 to 36, 38. Very unsteady.
7 to 15, 21 to 24, 43 to 47. Blurred and unsteady.
9. Observed for declination at 19*m.* 24*s.*
16 to 20. Observed for declination at 18*m.* 2*s.*, 20*m.* 0*s.*, 21*m.* 11*s.*, 23*m.* 5*s.*, and 24*m.* 14*s.*
51, 52. Rough and wavering.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THERM. At.	THERM. Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″			In.	°	°
Jan 23	1	α Cygni	54.1	9.9	25.4	40.2	56.0	11.2	27.0	20 36 40.54										
	2	α Persei	9.5	26.4		59.8	16.4	34.1	50.5	3 14 2.78	10 23 62.3	55.8	59.2	61.4	59.68	IV.	41.790	30.298	43.2	35.9
	3	η Tauri	21.2	33.0	45.1	57.2	9.2	21.3	33.3	3 38 57.19	344 45 0.5	3.4	6.5	5.1	3.88		38.555	30.292	42.[illegible]	33.7
	4	Anonymous	39.1	43.4	56.4	10.2	24.4	37.5	51.0	3 48 10.43	357 9 8.7	7.0	12.6	8.9	9.30		39.977	30.288	41.8	32.8
	†5	α Tauri	7.6	19.3	30.6	42.0	53.3	5.0	16.3	4 27 42.01	337 18 4.0	3.9	9.1	7.7	6.40*d*		40.398	30.284	40.0	31.2
	6	ε Hydræ	40.3	51.3	62.4	13.2	24.6	35.5	47.0	8 39 13.47										
	7	ε Leonis	6.4	19.1	31.0	42.8	55.0	7.1	19.0	9 37 42.91										
25	8	Sun, 1st and N. L.	2.7	14.7	26.4	37.5	49.4	1.0	12.4	20 31 37.73	302 15 52.8	53.8	60.9	59.2	56.68	VI.	43.132	30.076	46.7	51.2
	†9	Sun, 2d and S. L.	20.4	32.3	44.0	55.0	7.2	18.7	30.1	20 33 55.39						II.	37.188			52.7
26	†10	δ Geminorum	58.2	10.0	22.0	33.3	45.2	57.5	9.4	7 11 33.66										
	11	α^2 Geminorum	46.1	59.3	12.2	25.0	38.0	51.0	4.0	7 25 25.09										
	12	α Canis Minoris	18.5	29.3	40.6	51.5	2.7	13.6	24.8	7 31 51.57										
	†13	β Geminorum	54.5	7.0	19.2	31.4	44.2	56.8	9.2	7 36 31.76										
27	†14	α Cassiopeiæ	26.0	45.5	5.4	24.0	44.0	3.3	22.5	0 32 24.39										
	†15	Polaris	10.0								49 32 61.5	54.5	64.3	59.6	59.98	IV.	44.348			39.9
	16			16.0													44.229	30.352	47.0	39.6
	17																44.152			
	18				14.0												44.129			
	†19									1 5 14.17							44.114			39.4
	20						13.0										44.149			
	21																44.223			
	22							15.0									44.278	30.360	46.5	38.9
	†23								17.0								44.404			
	†24	α Arietis	31.5	43.4	55.2	7.2	19.3	31.0	42.9	1 59 7.21	343 50 59.4	57.8	62.0	62.8	60.50		40.010	30.366	46.7	37.8
	†25	γ Ceti	23.2	34.2	44.7	55.0	6.9	18.1	28.7	2 35 55.97	323 44 57.6	58.6	63.4	60.2	59.95		35.446	30.374	46.5	35.5
	26	μ Geminorum	42.0	54.0	5.8	17.6	29.7	41.3	53.4	6 14 17.69	343 41 41.9	40.7	46.4	44.9	43.48		39.214	30.392	39.5	28.3
	†27	δ Geminorum			22.4	34.0	46.2	58.2	10.2	7 11 46.20	343 21 2.2	1.2	7.0	5.8	4.05		40.639	30.386	38.0	27.7
	†28	α^2 Geminorum	46.2	0.1	13.2	25.2	38.2	51.2	4.4	7 25 25.50										
	29	α Canis Minoris	19.4	30.3	41.0	52.1	3.0	14.4	25.4	7 31 52.23										
	30	β Geminorum	55.0	7.4	19.9	32.4	45.0	57.5	9.5	7 36 32.39										
Feb. 3	†31	α Ceti	20.8	32.0	42.9	53.5	4.7	15.9	26.4	2 54 53.74	324 36 2.2	5.5	12.0	6.1	6.45		40.215	30.202	44.7	33.8
	†32	α Persei	13.9	30.8	47.5	4.0	21.0	38.2	54.7	3 14 4.30	10 26 63.0	57.0	65.7	62.0	61.93		36.479	30.196	43.0	32.8
	†33	η Tauri	25.2	37.5	49.0	1.0	13.1	25.2	37.0	3 39 1.14	344 44 58.8	61.0	64.0	60.9	61.18		38.650	30.204	42.0	32.0
	34	γ^1 Eridani	56.2	7.2	18.3	30.0	41.3	52.4	3.9	3 51 29.90	307 10 62.5	59.5	68.4	65.5	63.98		39.065	30.196	41.2	31.8
	35	β Orionis	14.5	26.2	37.0	48.1	59.2	10.2	21.3	5 7 48.07	312 45 2.2	2.4	7.8	3.2	3.90		38.219	30.222	41.0	29.2
	36	β Tauri	38.0	51.1	3.3	15.4	28.4	40.9	53.4	5 17 15.79	349 35 54.7	52.4	58.5	56.5	55.55		37.608	30.216	40.3	29.0
	37	δ Orionis	16.0	27.0	38.0	48.5	0.1	10.9	20.4	5 24 48.70										
	38	ζ Tauri	33.1	45.1	56.4	8.1	20.0	32.0	43.5	5 29 8.31	342 8 14.8	14.0	17.0	16.2	15.50		41.121	30.216	40.3	28.3
	39	α Orionis	57.7	9.0	20.0	31.0	42.2	53.3	4.4	5 47 31.09										
	40	Moon, 1st L.	37.5	50.0	1.4	13.6	25.4	37.2	49.0	6 1 13.44										
	41	μ Geminorum	45.2	57.4	9.0	20.2	32.9	44.5	56.4	6 14 20.80										
	42	γ Geminorum	56.4	7.9	19.0	30.4	42.0	53.0	4.4	6 29 30.44	337 36 7.5	6.5	10.2	9.0	8.30		42.555	30.212	37.0	27.0
6	43	β Orionis	16.2	27.3	38.1	49.1	0.2	11.5	22.9	5 7 49.33	312 42 5.2	4.0	11.5	10.3	7.75		43.170	29.882	42.0	31.9
	†44	δ Orionis	17.1	28.0	39.2	50.2	0.9	12.2	23.0	5 24 50.09	320 41 53.2	54.2	61.0	59.5	56.98		39.416	29.878	40.8	32.2
	†45	δ Ursæ Minoris, S.P.							4.0		54 26 63.9	56.2	65.1	60.5	61.43		43.137	29.878	39.8	32.5
	46							7.5									43.172			
	47						13.0			6 18 13.70							43.165			32.1
	48					21.0											43.159			
	†49				23.0												43.134			
	50	ε Canis Minoris	37.7	50.4	2.3	15.2	27.2	40.5	2.6	6 53 15.13	292 21 2.7	1.0	10.1	5.8	4.90		41.370	29.874	38.7	31.3
	51	α^2 Geminorum	51.2	4.3	17.3	29.9	43.2	56.2	9.2	7 25 30.19	353 17 61.9	57.8	63.7	62.4	61.45		41.330	29.866	37.8	30.6
	52	α Canis Minoris	23.2	34.5	45.4	56.3	7.2	18.7	29.8	7 31 56.44	326 42 12.5	13.9	18.2	16.3	15.23		41.120	29.866	37.5	30.7

Date.	Clock.	Hourly Rate.	VALUE OF m.	n.	c.	Error of Runs.	Mic. Coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Jan. 23, 9	*f* 23.740	*g* 0.018	− 1.355	+ 0.852	− 0.694			
25, 21						− 1.54		
26, 8	24.638	.021						
27, 1	25.090	.027				0.85		
7	25.287	.027						
Feb. 3, 5	28.244	.018	− 1.277	+ 0.755	− 0.694	0.51		
6, 7	29.661	.019				− 0.45		

1 rev. = 34″.515.

5. Mic. recorded 39*r*.398.

Assumed Latitude 38° 53′ 39″.25, North.

COR. IN R. A.		COR. IN DECL.		Corrected Readings.	Mic. Zero.	OBSERVED.		REDUCTION TO 1850.0.		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	Jan.	23.	2h.5		° 180.0
— 1.49	— 23.51					20 36 15.54	+ 44 45	+ 3.52		0″5	1″7	6″2	2″7	2″78
4.22	23.63	+ 1 22.29	+ 11.14	10 25 33.30	39.406	3 13 34.93	49 19 12.36	3.20	+ 8.75	1.0	1.5	6.1	2.5	2.77
1.74	23.64	— 29.37	— 16.59	343 44 17.92		3 38 31.81	23 37 57.17	2.85	15.96	0.9	1.9	6.3	2.3	2.85
1.60	23.64	— 19.71	3.04	357 8 46.55		3 47 45.19	36 2 25.80	2.96	11.80					
1.83	23.65	+ 34.24	25.56	337 18 15.08		4 27 16.53	16 11 54.33	2.58	16.09	0.8	1.7	6.2	2.5	2.80
1.95	23.73					8 38 47.79	6 58	1.92						
1.63	23.76					9 37 17.42	+ 24 28	2.31			Mic.	39.325	—10	rdgs.
2.38		+16 39.89	1 23.75	302 31 12.80	39.357		— 18 51 25.27							° ′
2.38		—15 52.89	— 1 25.63	301 58 38.16						Jan.	23.	8h.5.		179 59
1.76	24.62					7 11 7.28	+ 22 15	2.29	6.84	59.8	60.2	63.9	60.9	61.20
1.64	24.63					7 24 58.82	32 13	2.45		60.4	60.7	64.0	60.9	61 50
1.97	24.63					7 31 24.97	5 36	1.86						
1.68	24.63					7 36 5.45	28 23	2.33		60.10	60.45	63.95	60.90	61.35
1.34	25.08					0 31 57.97	55 43	3.55						
		+ 2 42.53	+ 1 10.59	49 36 53.10	39.366						Mic	39.315	—10	rdgs.
		42.68	10.60	53.26										
		42.85	10.63	53.46						Jan	25.			
		43.75	10.63	54.36						2.1	4.5	6.7	3.5	4.20
0.60	25.09	43.87	10.66	54.51		1 4 48.48	88 30 33.53	12.22	2.92	2.4	3.8	6.7	3.1	4.00
		44.24	10.68	54.90						2.7	3.8	7.5	3.4	4.35
		44.87	10.70	55.55						2.40	4.03	6.97	3.33	4.18
		43.99	10.73	54.70										
		43.90	+ 10.76	54.64							Mic.	39.236	—10	rdgs.
1.77	25.12	+ 22.23	— 17.50	343 51 5.23		1 58 40.32	22 44 44.48	3.28	18.70					
2.01	25.13	— 2 15.30	44.58	323 41 50.07		2 35 28.69	2 35 39.46	2.99	25.21	Jan.	27.	2h.		
1.75	25.27	— 0 5.14	18.06	343 41 20.28	29.360	6 13 50.67	22 34 59.53	2.42	8.26	58.7	59.2	62.7	60.4	60.25
13.57	25.29	+ 44.15	18.47	343 21 29.73		7 11 7.34	22 15 8.98	2.30	4.81	58.5	59 8	63 2	61.0	60.62
1.64	25.30					7 24 58.56	32 13	2.45						
1.97	25.30					7 31 24.96	5.36	1.86		58.60	59.50	62.95	60.70	60.74
1.68	25.30					7 36 5.41	28 23	2.33	2.55					
1.93	28.21	+ 29.74	— 43.05	324 35 53.14	39.352	2 54 23.60	3 29 32.39	3.01	24.93		Mic.	39.353	—10	rdgs.
1.46	28.21	— 1 39.23	+ 11.18	10 25 33.88		3 13 34.63	49 19 13.13	3.49	8.73	Jan	27.	7h.		
1.71	28.22	24.30	— 16.60	344 44 20.28		3 38 31.61	+ 23 37 59.53	3.03	16.30	56.3	57.7	62.0	57.3	58.32
2.18	28.22	9.96	1 20.12	307 9 33.90		3 50 59.50	— 13 56 46.85	2.46	28.21	56.5	57.4	62.2	58.0	58.53
2.09	28.24	39.54	1 6.22	312 43 18.14	39.365	5 7 17.74	— 8 23 2.61	2.10	21.36					
1.66	28.25	— 1 0.65	11.27	349 34 43.63		5 16 45.88	+ 28 28 22.88	2.76	9.95	56.40	57.55	62.10	57.65	58.42
1.97	28.25					5 24 18.48	— 0 25	2.19						
1.73	28.25	+ 1 0.48	19.76	342 8 56.22		5 28 38.33	+ 21 2 35.47	2.59	11.57		Mic.	39.406	—10	rdgs.
1.88	28.26					5 47 0.95	7 22	2.26	14.06					
1.77	28.26					6 1 55.01				Feb.	3.			
										60.2	61.2	64.0	61.0	61.60
1.71	28.27					6 13 50.82	22 35	2.48		60.7	60.8	64.8	60.7	61.75
1.78	28.27	1 50.12	25.32			6 29 0.39	+ 16 31 12.35	2.31	8.79					
2.09	29.62	2 13.18	1 5.11	312 43 15.82	39.312	5 7 17.62	— 8 23 4.93	2.13	21.52	60.45	61.00	64.40	60.85	61.67
— 1.97	29.63	3.58	— 49.58			5 24 18.49	— 0 25 9.77	+ 2.21	17.95					
		2 13.11	+ 1 24.13	54 30 38.67							Mic.	39.303	—5	rdgs.
		13.32	24.15	38.90										
+ 3 1.80	29.65	12.99	24.16	38.58		18 20 45.85	+ 86 35 42.04	— 2.94	6.01	Feb.	3.			
		13.12	24.18	38.73						58 9	58.7	63.8	60.0	60.35
		13.05	+ 24.20	38.68						60.1	61.0	63.8	59.5	61.10
— 2.48	29.66	1 11.04	— 2 25.58	292 19 50.36		6 52 42.99	— 28 46 30.39	+ 0.95	14.63	59.50	59.85	63.80	59.75	60.72
1.61	29.67	1 9.64	7.07	353 19 4.02		7 24 58.91	+ 32 12 43.27	2.45	1.99					
— 1.90	— 29.67	+ 1 2.43	— 39.61	326 42 38.05		7 31 24.87	+ 5 36 17.30	+ 1.86	+ 5.01		Mic.	39.336	—5	rdgs.

Object.	COR. IN R. A	Observed Semi-diam.	
	Semi-diam.	Hor.	Vertical.
	m. s.	m. s.	′ ″
Sun - -	- - - -	1 8.33	16 17.32
Moon -	+ 1 11.60		

9, 10, 13 to 28, 31, 32, 33. Unsteady. 13. Distended.
15 to 23. Observed for declination at 51m. 37s., 55m. 9s., 58m. 27s., 1m. 40s., 5m. 28s., 9m. 20s., 12m 37s., 15m. 41s. and 19m. 15s.
25. Very unsteady; poor observation.
44. Unsteady and blurred; clouds passing.
45 to 49. Observed for declination at 18m. 30s., 20m. 24s., 21m. 21s., 22m. 59s. and 24m. 23s.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THERM. At.	THERM. Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ″ ″	″	″	″	″			In.	°	°
Feb. 6	†1	θ Cancri	57.0	8.4	20.4	31.4	43.1	55.0	6.3	8 23 31.66	339 42 1.5	0.5	4.5	6.0	3.12	IV.	40.308	29.862	37.0	29.5
	2	δ Cancri	3.5	15.6	27.1	38.5	50.2	1.5	13.5	8 36 38.56	339 48 3.2	2.8	6.8	7.0	4.95		40.681	29.864	36.5	30.0
	†3	Moon, 1st & S. L.	1.2	12.4	24.3	35.4	47.3	59.2	10.3	9 6 35.73	334 44 59.0	60.2	60.5	62.4	60.52		34.957	29.862	36.4	30.5
	4	ξ Leonis	47.5	58.4	10.1	21.0	32.4	43.6	54.6	9 24 21.09	333 3 3.4	2.7	6.1	7.1	4.83		42.008	29.860	36.5	30.8
	5	ο Leonis	4.7	16.0	27.2	38.1	49.0	0.4	11.7	9 33 38.16	331 42 6.7	6.0	8.9	8.5	7.52		37.912	29.860	36.0	30.8
7	†6	α Tauri	14.2	25.5	37.0	48.2	59.7	11.2	22.5	4 27 48.33										
	7	β Tauri	40.4	53.2	5.2	17.3	30.2	42.7	55.5	5 17 17.79	349 33 7.2	5.1	8.9	8.9	7.52		42.450	30.328	38.5	23.9
	†8	δ Orionis	17.2	28.3	39.9	50.0	1.3	12.4	23.0	5 24 50.30										
	†9	ε Orionis	33.2	44.2	55.3	6.0	16.9	28.2	39.1	5 29 6.13										
	10	α Columbæ . . .		18.5	31.3	44.6	57.0	11.6	24.5	5 34 51.25	286 56 54.0	53.7	60.7	56.9	56.32		44.334	30.330	37.5	23.6
	†11	μ Geminorum . .	47.1	59.0	10.3	22.5	34.0	46.2	58.2	6 14 22 47										
9	12	η Tauri	27.3	40.0	52.4	3.6	16.0	28.0	40.0	3 39 3.90	344 44 56.4	60.8	61.3	57.9	59.10		38.732	29.932	39.5	28.0
	†13	α Tauri	14.2	26.3	37.4	49.0	0.2	12.0	23.4	4 27 48.93										
	†14	α Canis Majoris . .	29.8	41.4	52.9	4.2	15.3	26.9	38.5	6 39 4.14										
	15	α^2 Geminorum . .	52.4	5.8	18.9	31.1	44.5	57.5	10.4	7 25 31.51										
	16	α Canis Minoris . .	24.9	36.0	47.0	57.6	9.0	20.2	30.9	7 31 57.94										
	17	β Geminorum . .	0.4	13.4	25.7	37.9	50.5	3.0	15.4	7 36 38.04										
	18	α Hydræ . . .	11.3	22.2	33.3	44.4	55.6	6.7	17.0	9 20 44.36										
	19	ε Leonis	14.2	26.0	38.2	50.0	2.3	14.5	26.3	9 37 50.21										
10	†20	Sun, 1st L. . .	4.7	16.5	27.6	38.3	50.2	1.3	12.8	21 36 38.77										
	†21	Sun, 2d L. . .	19.3	30.0	42.0	52.8	4.4	16.0	27.3	21 38 53.11										
	22	Venus, 1st & S. L.	27.2	37.2	48.2	58.3	0.3	11.2	21.2	0 26 59.09	324 28 55.7	57.7	62.2	60.9	59.12		40.295	30.086	40.5	37.4
	†23	Venus, N. L. . .															40.937			
	†24		2.5								49 32 58.3	52.6	60.1	58.7	57.42		44.374	30.080	40.4	36.8
	†25			8.0													44.272			
	†26																44.140	30.076	40.3	36.6
	27				6.5												44.130			
	28	Polaris . . .				3.0				1 5 7.57							44.097			
	29						6.5										44.084	30.058	40.2	36.2
	30																44.160			
	31							13.0									44.241			
	32								13.5								44.350	30.054	40.0	36.2
	33	α Arietis	37.3	49.4	1.0	13.0	25.0	37.0	48.7	1 59 13.07										
	34	α Tauri	15.0	26.7	37.9	49.4	0.7	12.3	23.6	4 27 49.37	337 18 3.6	3.7	7.9	7.1	5.58		40.370	30.030	37.4	31.1
	35	α^2 Germinorum . .	53.0	6.2	18.8	31.5	44.9	57.6	10.8	7 25 31.83	353 20 59.7	57.3	61.4	61.8	60.05		36.160	29.956	35.4	29.4
	36	α Canis Minoris . .	25.0	36.4	47.2	58.0	9.0	20.4	31.3	7 31 58.19										
	37	β Germinorum . .	1.0	13.6	25.9	38.0	50.8	3.3	15.8	7 36 38.34										
12	†38	β Orionis . . .	18.5	29.7	41.0	51.5	3.1	14.1	25.2	5 7 51.87										
	†39	β Tauri	42.0	54.5	7.3	19.4	32.3	44.7	57.2	5 17 19.63										
	†40	δ Orionis	19.3	30.9	41.8	52.7	3.4	14.7	25.8	5 24 52.66										
	†41	α Leporis . . .			28.2	39.4	51.4	2.9	14.2	5 26 51.22										
	†42	ε Orionis . . .	35.3	46.4	57.7	7.9	19.2	30.3	41.0	5 29 8.26										
	43	α Columbæ . . .	6.8	20.4	33.5	46.7	0.0	13.4	26.5	5 34 46.76										
	†44	α Orionis . . .	11.3	22.8	33.5	44.7	55.8	6.9	18.0	5 47 44.71										
	45	δ Ursæ Minoris, S. P.	36.4	29.3	26.4	25.2	19.3	12.0	7.8	6 21 22.34										
	46	α Canis Majoris . .	30.7	42.7	54.1	5.0	16.8	28.3	39.5	6 39 5.30										
	47	ε Canis Majoris . .	39.7	52.7	5.2	17.5	30.1	42.3	55.1	6 53 17.51										
	48	α Ursæ Majoris . .		9.5	33.6	56.0	20.2	44.4	8.4	10 55 8.68										
15	†49	Sun, 1st L. . .	43.2	54.2	5.3	16.4	27.9	39.2	50.3	21 56 16.66										
	†50	Sun, 2d L. . .	56.2	7.3	19.0	29.5		52.5		21 58 20.90										
	51	λ Ursæ Minoris . .		34.0	31.0	32.0		1.0	49.0	8 9 41.40										
	†52	α Leonis	20.2	31.5	42.7	53.0	5.0	16.3	27.4	10 0 53.73										

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. Coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Feb. 6, 7	f 29.661	g 0.019	− 1.277	+ 0.755	− 0.694	−0.45		
7, 5	30.091	.018						
9, 7	30.932	.018						
10, 6	31.371	.017				−1.58		
12, 6	32.229	g .005						
15, 12	31.722	l .008	− 0.710	+ 0.140	− 0.480			

1 rev. = 34″.515.

Feb. 13. Set up reversing apparatus. Diminished the error of collimation, and adjusted for level and azimuth.

Feb. 15. Took down reversing apparatus, and adjusted the alidade circle in its former position.

COR. IN R. A.		COR. IN DECL.		Corrected readings.	Mic. Zero.	OBSERVED.		REDUCTION TO 1850.0.		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R.A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″					
— 1.75	— 29.69	+ 34.37	— 23.37	339 42 15.12	39.312	8 23 0.22	+ 18 35 54.37	+ 2.09	+ 0.50		Feb.6			
1.75	29.69	+ 47.24	22.23	339 48 29.96		8 36 7.12	18 42 9.21	2.08	— 0.53	0″2	0″4	4″2	1″7	1″62
1.86	29.70	—17 4.02	+40 37.83	335 8 34.33		9 7 12.83	14 2 13.58			0.7	0.9	4.6	1.6	1.95
1.83	29.71	+ 1 33.04	— 30.65	333 4 7.21		9 23 49.51	11 57 46.46	1.91	3.23					
1.84	29.71	— 48.31	32.51	331 40 46.70		9 33 6.61	10 34 25.95	1.90	— 3.85	0.45	0.65	4.4	1.65	1.79
1.78	30.08				39.323	4 27 16.47	16 12	2.78			Mic.	39.260	—10	rdgs.
1.66	30.09	+ 1 47.93	11.43	349 34 44.02		5 16 46.04	+ 28 28 23.27	2.80	+ 9.70					
1.97	30.10					5 24 18.23	— 0 25	2.23						
1.99	30.10					5 28 34.04	1 19	2.19						° ′
9.25	30.10	+ 2 52.96	3 21.20	286 56 28.08		5 34 11.90	— 34 9 52.67	1.20	24.83		Feb.	7,	5h.	180 0
1.72	30.11					6 13 50.64	+ 22 35	2.50		1.5	2.0	4.7	1.8	2.50
1.70	30.87	— 21.00	16.59	344 44 21.51	39.340	3 38 31.33	23 38 0.76	3.13	16.35	2.2	2.8	5.9	2.9	3.45
1.78	30.89					4 27 16.26	16 12	2.82		2.2	2.9	5.4	2.5	3.25
2.23	30.93				39.399	6 38 30.98	— 16 31	1.47						
1.62	30.94					7 24 58.95	+ 32 13	2.48		1.97	2.57	5.33	2.40	3.067
1.91	30.94					7 31 25.09	5 36	1.89			Mic.	39.234	—10	rdgs.
1.66	30.94					7 36 5.44	+ 28 23	2.34						
2.09	30.97					9 20 11.30	— 8 1	1.47						
1.70	30.98					9 37 17.53	+ 24 28	2.10						° ′
2.18	31.23										Feb.	9,	4h.	179 59
2.18	31.23					21 37 12.53				59.5	59.6	61.0	63.3	60.85
— 1.93	31.28	+ 30.72	36.08	324 28 53.56	39.405	0 26 26.52	3 22 44.40			61.0	61.0	60.7	64.0	61.67
		52.88	35.27	324 29 16.73										
		2 41.50	+ 1 10.43	49 36 49.35						60.25	60.30	60 85	63.65	61.26
		42.23	10.4	50.10										
											Mic.	39.304	—12	rdgs.
		40.91	10.45	48.78										
		42.42	10.46	50.30										
+ 1.05	31.29	41.94	10.46	49.83		1 4 37.33	88 30 28.65	22.87	5.00		Feb.	9,	9h.7.	
		40.90	10.46	48.79						1.7	2.0	5.0	2.8	2.88
		41.67	10.47	49.57						2.0	2.4	5.4	3.4	3.30
		41.48	10.47	49.38						2.4	2.7	5.9	3.0	3.50
		2 40.64	+ 1 10.47	48.54										
— 1.71	31.30					1 58 40.06	22 45	3.51		2.03	2.37	5.43	3.07	3.22
1.78	31.35	+ 34.60	— 25.36	337 18 14.81	39.368	4 27 16.24	16 11 54.06	2.85	16.47					
1.62	31.38	— 1 49.43	— 07.11	353 19 3.51	39.330	7 24 58.83	32 12 42.76	2.49	+ 1.54		Mic.	39.306	—10	rdgs.
1.91	31.38					7 31 24.90	5 36	1.90						
1.66	31.38					7 36 5.30	28 23	2.36			Feb.	10,	2h.5.	
2.09	32.22					5 7 17.56	— 8 23	2.24		58.5	59.0	63.3	59.4	60.05
1.66	32.23					5 16 45.74	+ 28 28	2.91		58.7	58.7	63.5	58.9	59.95
1.97	32.23					5 24 18.46	— 0 25	2.32		58.4	59.5	62.6	59.5	59.98
13.74	32.23					5 26 5.24	17 56	1.90						
2.09	32.23					5 28 33.94	1 18	2.28		58.53	59.06	63.13	59.27	60.00
2.63	32.23					5 34 11.90	— 34 10	1.32						
1.88	32.23					5 46 0.60	+ 7 22	+ 2.37			Mic.	39.405	—10	rdgs.
2.28	32.23					5 20 47 83	86 36	— 4.50						
2.23	32.23					6 38 30.84	— 16 31	+ 1.52			Feb.	10,	7h.	
2.47	32.23					6 52 42.81	22 47	1.05		0.0	0.7	2.6	0.4	0.92
13.22	32.25					10 54 23.21	+ 62 34	+ 2.11		0.4	1.0	2.0	0.4	0.95
— 1.23	31.83													
+ 7.75	31.83					21 56 50.21				0.20	0.85	2.30	0.40	0.94
+ 3 59.32	31.75					8 13 8.97	88 51	— 6.70						
— 1.17	— 31.74					10 0 20.82	+ 12 42	+ 1.86			Mic.	39.303	—9	rdgs.

Object.	COR. IN R.A.	Observed semi-diam.	
	Semi-diam.	Hor.	Vertical.
	m. s.	m. s.	′ ″
Moon -	+ 1 8.66		
Sun - -	- - - -	1 7.17	
Venus -	0.64	- - - -	11.59
Sun - -	- - - -	1 6.61	

1, 6 to 14, 20, 21, 38 to 44, 49, 50, 52. Very unsteady.
3. Observed for declination at 7m. 42s.
23. + 0″.80 applied for defective illumination.
24, 25, 26. Unsteady.
24 to 32. Observed for declination at 51m. 8s., 54m. 31s., 58m. 7s., 1m. 33s., 5m. 3s., 8m. 33s., 12m. 6s., 15m. 30s., and 19m. 13s.

DATE	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THERM. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Feb. 15	†1	α Ursæ Majoris - -	45.0	9.3	32.8	57.0	20.9	44.5	8.4	10 54 56.84										
	†2	δ Hydræ et Crateris -	48.4	59.5	10.9	22.0	33.5	14.7	56.0	11 12 22.14										
	†3	β Leonis - - - -	20.8	32.5	44.0	55.4	6.0	18.3	29.4	11 41 55.20										
	†4	β Corvi - - - - -	26.4	38.3	50.3	2.2	14.1	26.0	37.9	12 27 2.17										
	†5	Polaris, S. P. - -	2.0	56.0	51.0	2.0	50.0	52.0	47.0	13 4 54.29										
16	†6	Polaris - - - -	15.0	20.0	20.0	14.0	19.0	26.0	26.0	1 5 20.00										
	7	α Arietis - - - -	37.4	49.3	1.2	12.9	24.8	37.0	48.6	1 59 13.03										
	†8	α Tauri - - - - -	14.5	26.0	37.1	48.6	0.2	12.0	23.4	4 27 48.83	337 14 60.0	55.3	56.4	59.9	57.90	IV.	15.925	29.924	27.0	19.7
	9	α Canis Majoris - -	29.0	41.0	52.0	3.4	15.1	26.3	37.6	6 39 3.49	304 36 14.0	9.8	16.0	16.7	14.13		40.334	29.928	23.5	17.7
	10	ε Canis Majoris - -	38.2	50.5	3.2	15.4	28.0	40.4	53.0	6 53 15.53										
19	11	α Tauri - - - - -	15.5	27.0	38.7	50.0	1.6	13.3	24.0	4 27 50.11										
	12	β Orionis - - - -	18.5	29.7	40.8	51.5	3.0	14.0	25.0	5 7 51.79	312 42 10.0	7.2	9.4	10.9	9.38		43.277	30.588	29.9	21.9
	13	β Tauri - - - - -	42.4	55.0	6.9	19.4	32.4	44.9	57.2	5 17 19.74	349 36 7.3	2.4	5.0	6.1	5.20		37.427	30.580	29.3	21.7
	14	δ Orionis - - - -	19.4	30.5	41.6	52.3	3.5	14.4	25.4	5 24 52 44										
	15	α Leporis - - - -			28.0	39.1	50.9	2.4	14.0	5 26 50.88										
	16	ε Orionis - - - -	35.3	46.4	57.3	8.0	19.3	30.1	41.0	5 29 8.20										
	17	α Columbæ - - - -	6.5	20.0	33.0	46.1	9.4	13.0	26.0	5 34 46.29										
	18	α Orionis - - - -	1.6	12.9	23.8	34.6	45.9	57.0	8.0	5 47 34.83										
	†19	ε Leonis - - - -	15.4	27.4	39.8	51.5	3.6	16.0	28.0	9 37 51.67	345 32 61.0	57.0	58.8	58.8	58.90		41.917	30.572	25.2	15.5
23	†20	Polaris - - - -	54.0	56.0	55.0	48.5	59.0	57.5	59.0	1 4 55.57										
	21	η Tauri - - - - -	28.5	41.0	52.9	4.4	16.3	28.4	40.4	3 39 4.56										
	22	γ^1 Eridani - - - -				33.0	44.0	55.4	6.7	3 51 49.77										
	†23	α Tauri - - - - -		26.5	38.0	49.5	0.7	12.4	23.5	4 27 55.10	337 18 5.2	0.0	3.5	5.2	3.48		40.502	30.404	39.5	35.2
	†24	β Orionis - - - -			40.0	51.0	2.3	13.3	24.4	5 8 2.00										
	25	β Tauri - - - - -	41.4	54.2	6.4	19.0	31.5	44.0	56.5	5 17 19.00	349 35 62.4	57.0	60.0	58.9	59.58		37.498	30.412	39.7	33.8
	26	δ Orionis - - - -	18.9	30.0	40.5	51.4	2.7	13.3	24.5	5 24 51.61										
	27	ε Orionis - - - -	34.6	45.5	56.3	7.1	18.0	29.3	40.3	5 29 7.30										
	28	α Columbæ - - - -	6.1	19.2	32.4	45.1	58.4	12.2	25.4	5 34 45.54										
	29	α Ursæ Majoris - -		9.5	33.6	56.0	20.2	44.4	8.4	10 54 8.68										
	†30	δ Leonis - - - -	3.5	16.0	27.2	39 0	50.1	2.5	14.4	11 6 38.96										
	31	δ Hydræ et Crateris -	49.2	0.5	11.8	22.9	34.2	45.5	56.9	11 12 23.00										
	32	Polaris, S. P. - -	14.0	4.0	11 0	12.0	6.0	4.0	1.0	13 5 7.43										
March 7	33	δ Orionis - - - -	8.9	20.0	30.9	41.5	52.7	3.8	14.9	5 24 41.81										
	34	α Leporis - - - -	54.0	5.5	17.0	28.2	40.0	51.1	3.2	5 26 28.43										
	35	α Columbæ - - - -	55.5	9.0	22.1	35.0	48.4	1.9	15.1	5 34 35.29										
	36	δ Ursæ Minoris, S. P.	36.0	29.0	26.8	25.0	18.0	12.8	7.5	6 21 22.85										
	37	α Canis Majoris - -	20.0	31.3	43.0	54.1	5.2	17.1	28.5	6 38 54.17										
	38	ε Canis Majoris - -	28.7	41.1	54.0	6.1	19.0	31.3	44.0	6 53 6.31										
	39	Moon, 1st L. - -	36.3	48.4	59.4	10.7	21.3	33.4	45.0	10 34 10.64										
	40	δ Leonis - - - -	37.9	49.2	0.0	10.4	21.9	33.1	44.0	10 53 10.93	325 27 4.4	5.7	6.8	8.2	6.28		48.754	30.028	45.4	40.7
	41	χ Leonis - - - -				38.4	49.4	0.7	12.0	10 57 55.12										
	42	β Corvi - - - - -	18.0	30.0	41.9	53.2	5.1	17.3	29.3	12 26 53.54										
	†43	Polaris, S. P. -							51.0		52 32 66.9	57.9	58.7	61.3	61.20		41.514			39.4
	†44														61.49		41.671			
	†45							50.0							61.78		41.848	30.048	44.5	39.2
	†46														62.08		41.984			
	47						55.5				67.8	61.2	59.0	61.5	62.38		42.072			
	†48														62.50		42.112			
	†49					2.0				13 5 54.93					62.62		42.145	30.048		39.3
	†50														62.74		42.097			
	51				54.5						69.0	61.3	59.0	62.1	62.85		42.023			
	†52														63.42		41.895	30.052	44.0	39.2

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Errors of run.	Mic. Coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Feb. 16,6	f 31.467	l 0.009	— 0.710	+ 0.140	— 0.480	— 0.74		
19,5	33.867	g .015	— 0.149	+ 0.382	— 0.196			
23,5	33.163	l .008				— 0.32		
March 7,9	23.356	g .007						

1 rev. = 34″.515.

February 19. Adjusted in azimuth.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	− 1.49	− 31.73					10 54 23.62	+ 62 34	+ 2.04						
2	1.24	31.73					11 12 49.17	− 13 58	1.49			Feb.	16, 4h.		
3	1.16	31.72					11 41 22.32	+ 15 25	4.93		60.4	58.3	60 3	59.0	59.50
4	− 1.29	31.72					12 26 29.16	− 22 34	1.70		60.7	58.1	60.2	58.4	59.35
5	+ 12.89	31.71					13 4 35.47	+ 88 30	26.33		60.55	58.20	60.25	58.70	59.425
6	− 13.77	31.51					1 4 34.72	88 30	26.62						
7	1.17	31.50					1 58 40.36	22 45	3.60			Mic.	39.327	—5	rdgs.
8	1.17	31.48	+ 3 48.27	− 25.89	337 18 17.77	39.311	4 27 16.18	+ 16 11 57.02	2.94	+ 16.81					
9	1.25	31.46	35.38	1 29.97	304 35 19.53		6 38 30.78	− 16 31 1.22	1.56	14.99					
10	1.33	31.46					6 52 42.74	− 28 47	1.09						
11	0.24	33.86					4 27 15.91	+ 16 12	2.98						
12	.40	33.87	+ 2 15.57	1 8.11	312 43 16.83	39.349	5 7 17.52	− 8 23 3.93	2.33	22.47		Feb.	19, 5h.		
13	.17	33.87	− 1 6.34	11.59	349 34 47.27		5 16 45.69	+ 28 28 26.52	3.00	+ 9.59	59.4	57.3	59.4	59.7	58.95
14	.34	33.87					5 24 18.23	− 0 25	2.40		60.4	57.1	59.8	58.2	58.88
15	11.97	33.87					5 26 5.04	17 56	2.00		60.4	57.7	59.8	58.9	59.20
16	0.34	33.87					5 28 33.99	0 18	2.36		60.07	57.37	59.66	58.93	59.01
17	.64	33.87					5 34 11.78	− 34 10	1.45						
18	.30	33.88					5 47 0.65	+ 7 22	2.45			Mic.	39.378	—10	rdgs.
19	− .18	33.97	+ 1 25.45	16.43	345 34 7.92		9 37 17.52	24 27 47.17	2.03	− 4.49					
20	+ 6.99	33.19					1 4 29.37	88 30	31.29						
21	− .20	33.17					3 38 31.19	+ 23 38	3.38						
22	17.35	33.17					3 50 59.25	− 13 57	2.81						
23	5.95	33.16	+ 38.17	25.45	337 18 16.20	39.396	4 27 15.99	+ 16 11 55.45	3.06	+ 16.92		Feb.	19, 9h.		
24	11.45	33.16					5 7 17.39	− 8 23	2.41		60.9	56.9	59.5	58.5	58.95
25	0.17	33.16	− 1 5.51	11.23	349 34 42.83		5 16 45.67	+ 28 28 22.08	3.08	+ 9.42	60.4	56.5	58.0	57.0	57.98
26	.34	33.16					5 24 18.11	− 0 25	2.47		60.65	56.70	58.75	57.75	58.465
27	.35	33.16					5 28 33.79	1 18	2.43						
28	.64	33.16					5 34 11.74	− 34 10	1.54			Mic.	39.486	—10	rdgs.
29	11.73	33.12					10 54 23.83	+ 62 34	1.87						
30	0.21	33.11					11 6 5.64	+ 21 21	1.85						
31	.45	33.11					11 12 49.44	− 13 58	1.39						
32	7.29	33.10					1 4 27.04	+ 88 30	31.60						
33	.34	23.33					5 24 18.14	− 0 25	2.68			Feb.	23, 5h.		
34	.48	23.33					5 26 4.62	17 56	2.31		60.9	58.5	60.6	60.0	60.00
35	.64	23.33					5 34 11.32	− 34 10	+ 1.83		62.8	58.5	60.7	59.5	60.38
36	3.28	23.34					6 20 56.23	+ 86 36	− 11.56		62.0	58.2	60.4	59.8	60.10
37	.47	23.34					6 38 30.36	− 16 31	+ 1.86		61.90	58.40	60.87	59.76	60.16
38	.58	23.34					6 52 42.39	− 28 47	1.43						
39	.30	23.37					10 34 52.51					Mic.	39.391	—10	rdgs.
40	.32	23.37	+ 5 20.64	− 40.77	325 31 46.15	39.465	10 52 47.24	+ 4 25 25.40	1.61	− 7.31					
41	16.86	23.37					10 57 14.89	+ 8 9	1.63						
42	0.52	23.37					12 26 29.65	− 22 34	1.34						
43			+ 1 33.12	+ 1 17.78	52 35 52.10										
44			1 31.12	1 17.80	50.41							Mar.	7, 11h.		
45			1 32.01	1 17.82	51.61						60.2	61.3	58.0	57.3	59.20
46			1 32.34	1 17.81	52.23						60.2	60.9	58.0	57.2	59.08
47			1 32.38	1 17.81	52.57						60.0	61.2	58.2	57.8	59.30
48			1 31.85	1 17.81	52.16										
49	− 7.29	− 23.38	1 32.51	1 17.81	52.94		13 5 24.26	+ 88 30 28.86	+ 37.11	+ 10.85	60.13	61.18	58.07	57.43	59.193
50			1 31.64	1 17.81	52.19							Mic.	39.488	—10	rdgs.
51			1 30.95	1 17.81	51.61										
52			+ 1 29.65	+ 1 17.83	50.90										

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
39	Moon - -	+ 1 5.54		

1 to 6, 19, 23, 24, 30. Unsteady. 23. Observed with full aperture.
43 to 52. Observed for declination at 43*m.* 51*s.*, 47*m.* 40*s.*, 50*m.* 58*s.*, 54*m.* 30*s.*, 57*m.* 56*s.*, 1*m.* 41*s.*, 5*m.* 2*s.*, 8*m.* 45*s.*, 12*m.* 0*s.*, 15*m.* 25*s.*
44, 45, 46, 48, 49, 50, 52. Circle readings interpolated.

20. Observed by Passed Midshipman MacRae.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE & MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THER'S. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″			In.	°	°
Mar. 7	† 1			52.5											63.99	IV.	41.791			
	† 2														64.57		41.590			
	† 3		59.0									70.9	63.4	61.2	65.1		41.374	30.048		39.0
	4	η Bootis - - - - -	19.3	31.0	42.9	54.2	6.3	17.7	29.3	13 47 54.39	340 15 7.7	8.7	2.7	6.0	6.28		40.927	30.042	43.4	38.2
	5	α Bootis - - - - -	36.1	48.0	59.4	11.0	22.8	34.4	46.1	14 9 11.11										
8	6	α Aurigæ - - - - -	9.2	25.3	40.9	56.0	12.2	28.0	44.0	5 5 56.51	6 56 60.5	53.2	55.8	57.5	56.75		38.658	30.048	47.0	45.2
	7	β Tauri - - - - -	--	14.3	56.5	9.0	21.4	34.4	46.5	5 17 15.35	349 35 60.9	60.3	58.3	57.3	59.20		37.585	30.048	46.9	44.6
	8	δ Orionis - - - - -	8.9	20.2	30.9	42.0	53.0	3.9	15.0	5 24 41.99										
	9	α Leporis - - - - -	54.2	5.9	17.4	28.4	40.2	51.6	3.2	5 26 28.70										
	10	ε Orionis - - - - -	24.5	35.7	46.2	57.3	8.5	19.5	30.4	5 28 57.44										
	†11	α Columbæ - - - - -	55.5	9.1	22.3	35.5	49.0	2.2	15.2	5 34 35.54	286 57 3.7	1.9	3.0	2.4	2.75		44.020	30.048	46.8	43.4
9	†12	δ Hydræ *et* Crateris -	40.4	51.7	3.0	13.9	25.5	36.5	48.0	11 12 14.14										
	†13	υ Leonis - - - - -	6.3	17.2	28.0	39.3	50.1	1.3	12.2	11 29 39.20	321 6 1.7	5.8	4.8	4.9	4.30		42.050	29.846	45.0	34.6
	†14	β Virginis - - - - -	43.0	53.6	5.2	15.9	27.2	38.0	48.4	11 43 15.90										
	†15	Moon, 2d L. - - - -	--	--	--	45.2	56.3	--	--	12 19 50.75										
19	16	Sun, 1st L. - - - -	12.7	24.6	35.2	46.1	57.4	8.4	19.2	23 55 46.57										
	17	Sun, 2d L. - - - -	22.1	33.0	44.1	54.9	6.0	17.0	28.1	23 57 55.03										
	†18		37.0								49 35 62.5	48.2	52.2	53.7	54.15		39.482	30.288	51.7	50.0
	19																39.269			
	20			47.0													39.095			
	21				42.0												39.016	30.284	51.9	49.6
	22																38.921			
	†23	Polaris - - - - -				34.5				1 4 41.14							38.860	30.282	52.2	50.3
	24																38.840			
	25						40.0										38.878	30.280	52.5	50.5
	26							44.0									38.974			
	27																39.118			
	†28								43.5								39.275	30.278	52.5	50.7
	29	β Tauri - - - - -	36.0	48.9	1.1	13.2	26.0	38.5	51.0	5 17 13.53										
	30	δ Orionis - - - - -	13.5	24.4	35.4	46.2	57.3	8.3	19.2	5 24 46.33										
	31	α Leporis - - - - -	58.4	10.2	21.4	33.0	44.5	56.1	7.9	5 26 33.07										
	32	ε Orionis - - - - -	29.0	40.2	50.9	1.9	13.0	24.0	35.0	5 29 2.00										
	33	α Orionis - - - - -	55.5	6.7	17.8	28.8	39.7	50.8	1.7	5 47 28.71										
	†34								18.0		54 29 64.3	46.2	52.5	51.6	53.65		38.245	30.218	53.0	48.0
	35																38.310			
	36																38.397			
	37																38.440			
	38						28.5										38.463			47.8
	39																38.487			
	†40	δ Ursæ Minoris, S. P.				35.5				6 22 33.83							38.490			
	41																38.483			
	42				36.5												38.445			47.8
	43																38.392			
	44			39.5													38.335			
	45																38.272			
	†46		45.0														38.193	30.216		47.7
	47	α Canis Majoris - -	24.4	36.0	47.4	58.5	10.2	21.5	33.4	6 38 58.77										
	48										52.35 69.0	54.4	56.0	57.3	59.17		36.920	30.176	46.0	40.4
	49																37.050			
	50							54									37.120			
	51																37.180	30.178	45.8	40.8
	52	Polaris, S. P. - -					58										37.216			

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At.	
h.	s.	s.	s.	s.	s.	s.	h.	revs.
Mar. 8, 5	*f* 23.560	*g* .017	— .149	+ .382	— .196			
9, 11	24.364	*g* .025						
19, 6	28.232	*g* .025				— 1.98		

1 rev. = 34″.515.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	° ′
1			+ 1 30.43	+ 1 17.84	52.26	39.465						Mar.	8,	5h.	179 39
2			1 29.25	1 17.85	51.67						59.3	61.3	58.3	57.5	59″10
3			1 28.86	+ 1 17.85	51.86						59.5	61.2	58.5	57.0	59.05
4	— 0.26	— 23.39	+ 50.48	— 21.44	340 15 35.32		13 47 30.74	+ 19 9 14.57	+ 1.76	— 8.86	59.4	61.0	58.8	57.0	59.05
5	.28	23.39					14 8 47.44	19 59	1.73						
6	.04	23.56	— 27.36	+ 7.18	6 56 36.57	39.451	5 5 32.91	45 50 15.82	3.92	+ 4.06	59.4	61.17	58.53	57.17	59.07
7	6.39	23.56	— 1 4.40	— 10.85	349 34 43.95		5 16 45.40	+ 28 28 23.20	3.34	9.44		Mic.	39.479,	—16	rdgs.
8	.34	23.57					5 24 18.08	— 0 26	2.71						
9	.48	23.57					5 26 4.65	17 56	2.34						
10	.35	23.57					5 28 33.52	1 18	2.66						
11	.64	23 57	+ 2 37.70	3 11.21	286 56 29.24		5 34 11.33	34 9 51.51	1.85	+ 27.39					
12	.45	24.37					11 11 49.32	— 13 58	1.30						
13	.34	24.37	+ 1 29.96	— 48.19	321 6 46.07	39.443	11 29 14.49	+ 0 0 25.32	1.54	— 9.02					
14	.33	24.38					11 42 51.19	2 38	1.62						
15	5.87	24.40					12 18 17.17								
16	.35	28.08													
17	— .35	28.08					23 56 22.37								
18			— 21.94	+ 1 9.00	49 36 41.21	39.463									
19			22.47	1 9.02	40.70										
20			22.68	1 9.03	40.49							Mar.	9,	11h.	
21			21.35	1 9.05	41.85						60.7	62.0	59.3	57.8	59.95
22			21.03	1 9.02	42.14						60.8	62.2	59.4	58.1	60.13
23	+ 6.99	28.11	21.56	1 8.99	41.58		1 4 20.02	88 30 20.23	40.98	+ 14.20	61.0	62.5	59.8	58.7	60.50
24			22.23	1 8.93	40.85						60.83	62.23	59.50	58.20	60.19
25			22.60	1 8.93	40.48										
26			22.76	1 8.91	40.30							Mic.	39.438,	—12	rdgs.
27			22.76	1 8.90	40.29										
28			22.15	1 8.90	40.90										
29	— .17	28.21					5 16 45.15	+ 28 28	3.56						
30	.34	28.21					5 24 17.78	— 0 25	2.90						
31	.48	28.21					5 26 4.38	17 56	2.56						
32	.35	28.22					5 29 33.43	— 1 18	2.86						
33	.30	28.23					5 47 0.18	+ 7 22	+ 2.94						
34			32.33	1 22.38	54 30 43.70										
35			33.21	1 22.38	42.82							Mar.	19,	7h.	
36			33.31	1 22.39	42.73						68.3	62.9	59.8	60.0	62.75
37			33.08	1 22.40	42.97						68.5	63.7	60.7	59.7	63.15
38			33.51	1 22.40	42.54						69.2	64.0	60.8	60.5	63.62
39			33.48	1 22.40	42.57										
40	1 4.85	28.24	33.58	1 22.41	42.48		6 21 0.88	+ 86 35 38.24	— 16.07	+ 12.57	68.67	63.53	60.43	60.06	63.17
41			33.44	1 22.42	42.63							Mic.	39.371,	—10	rdgs.
42			33.94	1 22.42	42.13										
43			34.01	1 22.41	42.05										
44			34.45	1 22.41	41.61										
45			33.93	1 23.42	42.14										
46			33.76	1 22.42	42.31										
47	— .47	28.26					6 38 30.04	— 16 31	+ 2.10						
48			1 16.33	1 17.93	52 36 0.77	39.418									
49			1 16.32	1 17.92	0.77										
50			1 16.92	1 17.91	0.16										
51			1 16.75	1 17.91	0.33										
52			— 1 15.99	+ 1 17.92	1.10										

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
15	Moon -	— 1 3.31		
16	Sun - -		1 4 23	

1, 2. Circle readings interpolated.
1, 2, 3. Observed for declination at 18m. 53s., 22m. 26s., and 25m. 29s.
11 to 15. Partially obscured by cloud.
18 to 28. Observed for declination at 43m. 47s., 47m. 14s., 50m. 50s., 54m. 3s., 58m. 4s., 0m. 57s., 8m. 36s., 11m. 40s., 15m. 31s., 19m. 22s., 22m. 18s., 25m. 50s.
34 to 36. Observed for declination at 12m. 20s., 13m. 57s., 16m. 0s., 17m. 5s., 18m. 32s., 20m. 8s., 21m. 39s., 23m. 17s., 24m. 40s., 26m. 30s., 27m. 40s., 29m. 19s., 30m 46s.
48 to 52. Observed for declination at 50m. 54s., 54m. 31s., 57m. 58s., 1m. 42s., 5m. 14s.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Mar. 19	†1					6.0				13 8 27.50						IV.	37.207			
	2																37.139	30.178	45.8	40.7
	3				57.0												37.040			
	4	Polaris, S. P.															36.917			
	5			51.0													36.744			
	†6		59.0														36.538	30.174	45.7	40.4
	7	η Ursæ Majoris	13.6	31.0	47.9	4.8	22.0	39.2	56.1	13 42 4.94	11 11 67.5	55.0	56.3	56.3	58.78		36.202			39.8
	8	α Bootis	41.6	53 4	5.0	16.4	28.2	40.1	51.4	14 9 16.59	341 6 7.6	2.9	2.1	3.2	3.95		37.307	30.152	45.0	38.9
	9	ε Bootis	16.3	28.7	41.0	53.2	5.7	18.2	30.4	14 38 53.36	348 50 68.2	59.7	58.0	59.4	61.32		36.310	30.138	44.5	38.8
22	10	Sun		20.4	31.3	42.4	53.3	4.4	15.4	0 6 47.87										
	11	Sun	18.3	29.4	40.4	50.9	2.6	13.1	24.2	0 8 51.27										
	12		34.0								49 35 63.2	46.2	49.8	52.9	53.02		39.038	30.228	50.7	45.9
	13																38.981			
	14			41.0													38.807			
	15	Polaris			38.0												38.760			
	16					31.0				1 2 15.67							38.732	30.234	50.5	45.9
	17						33.0										38.763			
	18																38.872			
	19								37.0								38 915	30.234	51.0	46.3
	20	Venus, 1st and S. L.	4.2	16.2	27.4	39.7	51.4	3.4	14.9	2 51 39.60	341 59 66.5	61.2	58.2	59.4	61.32		39.301	30.228	52.2	48.7
	†21	Venus, N. L.															40.195			
	22	α Canis Majoris		37.5	48.5	59.6	11.5	23.0	34.5	6 39 5.77										
	23	α Leonis	16.8	28.5	39.7	50.3	2.1	13.3	24.4	10 0 50.73	333 48 6.9	1.5	0.8	1.5	2.68		40.960	30.338	46.5	36.8
	24	β Leonis	18.4	29.6	41.0	52.3	3.7	15.4	26.5	11 41 52.41										
	25	γ Ursæ Majoris	26.2	45.2	4.1	22.8	42.0	0.8	19.8	11 46 22.99										
23	†26	Polaris	32.0	44.0	40.0	31.0	35.0	38.0		1 1 6.67										
24	27	Sun, 1st and N. L.	26.4	37.8	48.9	59.5	10.7	21.8	32.7	0 13 59.69	322 38 63.5	58.3	56.7	58.4	59.23	VI.	36.620	30.246	49.0	54.4
	28	Sun, 2d and S. L.	35.3	46.4	57.7	8.4	19.3	30.5	41.4	0 16 8.43						II.	41.656			
	†29		38.0								49 35 69.1	56.2	57.9	61.4	61.14	IV.	39.272	30.234	51.4	57.1
	30																39.083			
	31			43.0													38.900			
	32																38.795			
	33				40.0												38.674	30.228	52.2	58.6
	34																38.655			
	†35	Polaris				32.5				1 4 39.29							38.583			
	36																38.639			
	37						38.0										38.680	30.224	52.8	58.9
	38																38.787			
	39							41.5									38.935			
	40																39.132			
	†41								42.0								30.309	30.214	53.5	59.6
	42	Venus, 1st and S. L.	9.6	21.9	33.2	45.3	57.2	9.0	20.8	2 57 45.29	342 36 7.3	8.9	7.0	1.9	6.27		40.955	30.180	54.5	60.2
	†43	Venus, N. L.															41.855			
	44	α Orionis	57.4	9.1	19.9	30.8	42.0	53.0	4.0	5 47 30.89										
	45	μ Geminorum	45.0	56.9	8.3	20.2	32.3	44.4	56.2	6 14 20.47	343 41 58.8	52.7	50.9	51.9	53.58		39.130	30.149	54.5	56.8
	46	α Canis Majoris	26.7	38.2	49.5	1.0	12.2	24.0	35.5	6 39 1.01	304 36 6.5	1.8	4.5	3.4	4.05		40.423	30.148	54.8	55.5
	47	ε Canis Majoris	35.6	48.4	0.8	13.3	25.5	38.4	55.7	6 53 13.24	292 20 62.8	56.2	58.7	55.4	58.28		41.334	30.150	55.0	54.4
	48	ι Ursæ Majoris	32.5	49.4	5.8	22.0	39.0	55.4	12.0	8 49 22.30	9 44 64.9	53.8	54.3	56.2	57.30		37.788	30.152	54.7	51.7
	49	Jupiter, 1st and S. L.	17.3		41.0		4.2		27.2	9 2 52.42	339 2 64.8	59.4	59.0	59.7	60.72		39.597	30.150	54.5	51.5
	50	Jupiter, 2d and N. L.		32.4		55.2		18.4		9 2 55.33							40.800			
	51	α Hydræ	9.3	20.6	31.6	42.3	53.4	4.5	15.4	9 20 42.44	313 5 65.6	60.5	60.9	59.5	61.63		40.682	30.144	54.3	50.9
	52	ε Leonis	11.9	24.0	36.1	48.0	0.2	12.0	24.5	9 37 48.10	345 32 64.4	58.7	56.5	56.3	58.97		42.150	30.140	54.2	51.3

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At		1 rev. = 34.515″
h.	s.	s.	s.	s.	s.	″	h.	revs.	
Mar. 19, 14	f 28.547	g .025	— .149	+ .382	— .196				March 19 and 24. In observing for nadir point found transit wire I slack.
22, 11	29.583	.018	— .175	+ .465	— .196				
24, 8	30.547	.021							
30, 8	33.717	.020							

COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
m. s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
— 3 37.64	— 28.53	— 1 15.61	+ 1 17.92	52 36 1.48	39.418	13 4 21.33	+ 88 30 19.97	+ 41.10	+ 14.35		Mar.	19,	12.h	
		1 15.94	1 17.92	1.15						65.4	60.4	56.4	55.8	59.50
		1 16.35	1 17.93	0.75						65.2	60.2	55.7	55.6	59.18
		1 16.23	1 17.93	0.87										
		1 16.58	1 17.93	0.53						65.30	60.30	56.05	55.70	59.34
		1 16.46	1 17.94	0.65										
.00	28.54	1 50.99	+ 11.81	11 10 19.59		13 41 36.40	50 3 59.84	0.96	— 8.26		Mic.	39.437	—10	rdgs.
.25	28.55	1 12.85	— 20.53	341 4 30.57		14 8 47.79	19 58 9.82	1.47	9.98					
.17	28.56	1 47.27	— 11.84	348 49 2.21		14 38 24.63	27 42 41.46	1.48	6.27					
5.85	29.39													
											Mar.	22,	6.5h	
— .37	29.39					0 7 17.07				61.2	55.7	54.2	53.0	56.03
		25.63	+ 1 9.43	49 36 36.82						61.8	55.7	54.0	52.9	56.10
		23.95	1 9.43	38.50										
		26.49	1 9.44	35.97						61.50	55.70	54.10	52.95	56.06
		26.23	1 9.44	36.23										
+ 2 30.47	29.40	26.78	1 9.43	35.67	39.508	1 4 16.74	88 30 15.94	41.93	+ 15.16		Mic.	39.622	—10	rdgs.
		26.22	1 9.42	36.22										
		24.54	1 9.40	37.88										
		26.15	+ 1 9.39	36.26										
											Mar.	24,	2.h	
— .21	29.44	— 7.14	— 14.37	341 59 39.81		2 51 11.01	+ 20 53 35.01			67.8	62.9	60.5	57.5	62.18
		+ 23.71	13.33	342 0 11.70						67.0	63.2	60.2	58.5	62.22
6.24	29.51					6 38 30.02	— 16 31	2.16						
.28	29.56	50.13	29.76	333 48 23.04		10 0 20.89	+ 12 42 2.29	1.87	— 5.63	67.40	63.05	60.35	58.00	62.20
— .25	29.59					11 41 22.57	15 25	1.60						
+ .15	29.60					11 45 53.51	54 33	1.46			Mic.	39.401	—10	rdgs.
+ 3 40.41	29.90					1 4 17.18	88 30	42.18						
— .36	30.38	+ 18 45.30	38.71	322 57 5.82	39.472									
— .36	30.38	— 13 18.54	— 39.50	322 25 1.19		0 14 33.32	1 34 42.75							
											Mar	24,	10.5h	
		29.79	+ 1 7.95	49 36 39.38						62.5	67.0	55.7	53.5	57.18
		29.64	1 7.89	39.39						62.9	57.4	56.0	53.7	57.50
		29.68	1 7.83	39.29										
		28.86	1 7.78	40.06						62.70	57.20	55.85	53.60	57.34
		30.04	1 7.73	38.83										
		28.89	1 7.71	39.96							Mic.	39.583	—10	rdgs.
+ 10.14	30.40	30.69	1 7.70	38.15		1 4 19.03	88 30 18.84	42.36	+ 15.79					
		29.29	1 7.69	39.54										
		29.78	1 7.68	39.04										
		29.59	1 7.66	39.21										
		28.58	1 7.63	40.19										
		27.73	1 7.60	41.01										
		— 28.05	+ 1 7.57	40.66										
— .20	30.44	+ 51.18	— 13.26	342 36 44.19		2 57 15.74	21 30 39.76							
		+ 1 22.25	12.20	342 37 16.32										
.31	30.50					5 47 0.08	7 22	3.05						
.19	30.51	— 12.39	16.90	343 41 24.29	39.489	6 13 49.77	+ 22 35 3.54	3.27	7.30					
.52	30.52	+ 32.24	1 23.73	304 35 12.56		6 39 29.97	— 16 31 8.19	2.21	17.25					
— .66	30.52	+ 1 3.68	— 2 20.08	292 19 41.88		6 52 42.06	28 46 38.87	1.81	+ 19.97					
+ .05	30.56	— 59.29	+ 10.01	9 44 8.02	39.506	8 48 51.79	+ 48 37 47.27	2.95	— 11.94					
— .23	30.57	+ 3.14	— 21.70	339 2 42.16		9 2 23.08	+ 17 56 42.18							
.23	30.57	44.66	21.68	339 3 23.70										
.44	30.58	40.59	1 2.34	313 5 39.93		9 20 11.42	— 8 0 40.82	1.66	+ 1.50					
— .18	30.58	+ 1 31.26	— 15.02	345 34 15.21		9 37 17.25	+ 24 27 54.46	+ 2.19	— 7.39					

Object.	COR. IN R. A. Semi-diam.	Observed semi-diam. Hor.	Observed semi-diam. Vert.
	m. s.	m. s.	′ ″
Sun - -		1 4.44	
Venus -	+ 1.06		15.94
Sun - -		1 4.37	16 2.31
Venus -	+ 1.09		16.07
Jupiter -		1.45	20.77

1 to 6. Observed for Dec. at 8m. 31s., 12m. 6s., 15m. 23s., 18m. 51s., 22m. 20s., 25m. 59s.
12 to 19. Unsteady. Observed for Dec. at 51m. 15s., 54m. 12s., 58m. 7s., 2m. 0s., 4m. 59s., 7m. 58s., 11m. 55s., 15m 4s.
21. + 1″.03 applied for defective illumination.
29 to 41. Unsteady. Observed for Dec. at 43m. 40s., 47m. 1s., 50m. 53s., 54m. 11s., 57m. 50s., 1m. 8s., 4m. 35s., 8m. 3s., 11m. 44s., 15m. 36s., 18m. 50s., 22m. 30s., 25m. 46s.
43. + 1.″05 applied for defective illumination.
12 to 19. 26 observations by Passed Midshipman McRae.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Mar. 24	1	α Leonis - - - -	18.2	29.5	40.5	51.5	2.9	14.2	25.4	10 0 51.74	333 48 7.7	1.7	1.2	2.0	3.15	IV.	40.873	30.130	54.0	50.1
30	2	μ Geminorum - - -	48 0	0.0	12.0	23.5	35.4	47.4	59.2	6 14 23.64										
	3	α Canis Majoris - -	30.0	41.3	52.8	3.4	15.6	27.5	38.5	6 39 4.16										
	4	δ Geminorum - - -	5.0	17.0	28.7	40.3	52.4	4.1	15.9	7 11 40.49										
	5	α^2 Geminorum - - -	53.0	6.2	19.0	31.8	44.5	57.8	10.5	7 25 31.83										
	† 6	α Canis Minoris - -	25.2	36.3	37.3	48.3	59.2	10.5	21.5	7 31 58.33										
	† 7	β Geminorum - - -	1.3	13.9	26.2	38.4	51.0	3.3	16.0	7 36 38.59										
	† 8	15 Argus - - - - -	6.0	18.2	30.0	41.9	54.0	6.1	18.0	8 1 42.03										
	† 9	α Hydræ - - - -	11.9	23.2	34.3	45.2	56.0	7.5	18.4	9 20 45.21	313 6 0.0	0.7	5.0	3.1	2.20		40.530	30.078	58.4	56.2
	†10	ε Leonis - - - -	14.7	27.4	39.4	50.7	3.4	15.6	27.7	9 37 51.27	345 35 60.5	59.2	62.8	60.8	60.82		36.717	30.076	58.2	55.8
	11	α Ursæ Majoris - -	45.8	8.8	32.4	56.5	20.7	44.9	8.6	10 55 56.81	23 38 62.4	55.3	59.4	59.5	59.15		40.797	30.075	56.2	51.5
	†12	δ Leonis - - - -	4.2	16.4	27.9	39.7	51.5	3.2	14.9	11 6 39.69	342 27 1.5	1.8	5.7	5.0	3.50		40.239	30.074	56.1	51.1
	13	δ Hydræ et Crateris -	49.6	1.1	12.5	23.2	34.9	46.2	57.5	11 12 23.57	307 9 1.5	2.6	6.5	4.8	3.85		40.450	30.072	56.0	50.5
31	14	Sun, 1st L. - - -	--	8.2	18.8	29.9	40.9	52.1	2.9	0 39 35.47										
	15	Sun, 2d L. - - -	6.0	17.0	28.0	38.5	49.9	0.9	12.0	0 41 38.90										
	16	Polaris - - - -	40.0	47.0	42.5	35.5	42.5	43.0	44.3	1 4 42.11										
	17	α Aurigæ - - - -	19.3	35.2	50.9	6.2	22.2	38.0	54.0	5 6 6.54										
	18	β Tauris - - - -	42.0	54.4	7.0	19.1	31.4	44.2	56.6	5 17 19.24										
	19	δ Orionis - - - -	19.4	30.3	41.0	52.0	3.1	14.0	24.9	5 24 52.10										
	20	α Leporis - - - -	--	16.0	27.4	38.5	50.0	2.0	13.4	5 26 44.55										
	21	ε Orionis - - - -	34.7	45.9	56.7	7.4	18.3	29.5	40.5	5 29 7.57										
	22	α Orionis - - - -	1.3	12.4	23.2	34.3	45.4	56.4	7.5	5 47 34.36										
	23	μ Geminorum - - -	48.4	0.3	12.2	24.0	36.0	47.8	59.7	6 14 24.06	343 42 1.7	2.9	3.9	4.9	3.35		38.740	29.964	63.2	66.3
	24	γ Geminorum - - -	59.8	11.4	22.4	33.7	45.4	56.9	8.4	6 29 34.00										
	25	ζ Geminorum - - -	49.7	1.3	12.4	23.4	34.7	46.2	57.5	6 37 23.60	334 8 59.0	64.2	65.0	64.3	63.12		40.790	29.958	63.4	65.5
	26	ε Canis Majoris - -	--	--	4.3	16.5	29.1	41.4	54.3	6 53 29.12	292 20 58.8	58.9	64.1	61.3	60.78		41.102	29.960	63.2	64.9
	27	δ Geminorum - - -	5.5	17.4	29.2	40.3	53.0	4.4	16.3	7 11 40.87	343 21 3.3	1.7	4.9	5.7	3.90		40.761	29.958	63.0	63.3
	28	Moon, 1st L. - -	30.3	42.2	54.2	5.9	17.8	29.6	41.2	7 25 5.89										
	29	κ Geminorum - - -	18.3	30.3	42.4	54.4	6.3	18.9	30.7	7 35 54.47	345 51 2 7	3.6	5.3	3.0	3.65		40 679	29.952	62.8	61.4
	30	Jupiter, 1st L. - -	--	35.2	46.3	57.8	9.3	21.0	32.4	9 2 3.67										
	31	Jupiter, 2d L. - -	--	--	49.2	--	12.0	24.0	35.3	9 2 15.13										
April 2	32	Sun, 1st L. - - -	15.5	--	37.5	48.1	59.3	10.5	21.3	0 46 52.03										
	33	Sun, 2d L. - - -	24.2	35.3	16.2	57.3	8.4	19.4	30.3	0 48 57.30										
	34	Venus, 1st & S. L.	--	14.2	56.0	8.2	20.0	32.3	44.5	3 22 14.20	344 57 0.7	5.4	6.0	7.0	4.78		40.870	30.130	56.2	52.8
	†35	Venus, N. L. - -															41.917			
	36	α Canis Majoris - -	32.4	43.7	55.2	6.4	18.0	29.5	41.0	6 39 6.60	304 36 2.0	6.0	12.2	12.3	8.12		40.242	30.114	56.8	54.5
	37	ε Canis Majoris - -	41.1	53.8	6.1	18.5	31.1	43.4	56.2	6 53 18.60	292 20 57.2	61.9	67.5	65.8	63.10		41.133	30.110	56.2	54.0
	38	δ Geminorum - - -	7.4	19.3	31.1	42.8	54.7	6.4	18.5	7 11 42.89										
	39	α^2 Geminorum - - -	55.3	8.4	21.4	34.2	47.3	0.4	13.2	7 25 34.31	353 21 0.5	3.8	5.8	6.8	4.22		36.170	30.108	56.0	52.8
	40	α Canis Minoris - -	--	39.1	49.9	0.7	12.0	23.0	34.0	7 32 6.45	326 42 1.9	7.8	10.9	10.3	7.72		41.304	30.110	55.9	52.7
	41	β Geminorum - - -	--	--	28.4	40.9	53.5	6.0	18.4	7 36 53.44	349 26 56.8	59.9	61.4	64.0	60.52		43.855	30.112	55.8	52.5
	42	15 Argus - - - - -	8.7	20.5	32.4	44.5	56.0	8.5	20.5	8 1 44.44	297 14 58.8	63.6	69.2	68.9	65.12		40.173	30.114	55.5	49.9
	†43	δ Cancri - - - -	--	20.2	31.6	43.5	54.9	6.2	18.1	8 36 49.08	339 47 48.8	53.8	56.2	59.1	54.48		41.113	30.128	55.0	47.5
	†44	α Cancri - - - -	16.3	28.3	39.6	50.6	1.7	12.8	24.5	8 49 50.54	333 32 54.8	61.0	60.9	63.4	60.02		39.353	30.130	55.0	46.9
	45	Jupiter, 1st & S. L.	15.3	27.1	38.4	50.5	1.3	13.3	24.7	9 1 50.09	339 5 59.3	64.2	67.0	66.9	64.35		41.290	30.134	55.0	47.3
	46	Jupiter, 2d & N. L.	18.2	30.0	42.0	53.2	4.0	16.2	27.4	9 1 53.00							42.410			
	†47	Moon, 1st & N. L. -	31.9	43.4	55.0	6.4	17.9	29.4	41.1	9 21 6.44	334 14 28.2	34.7	38.7	34.8	34.10		39.705	30.136	54.2	46.7
	48	o Leonis - - - -	--	--	31.6	42.9	54.0	5.4	16.4	9 33 54.06	331 41 55.9	61.4	64.4	63.4	61.28		38.128	30.138	54.0	46.7
	49	η Leonis - - - -	8.8	20.4	31.9	43.2	54.9	6.5	18.0	9 59 43.39	338 34 58.6	64.8	67.9	66.5	64.45		40.008	30.148	53.4	45.8
5	†50	Sun, 1st L. - - -	--	24.3	35.8	46.7	57.6	9.0	19.9	0 57 52.22										
	†51	Sun, 2d L. - - -	22.8	34.0	44.9	55.8	6.4	18.0	29.1	0 59 55.86										
	52	δ Leonis - - - -	--	21.4	33.0	44.7	56.5	8.5	20.2	11 6 50.72	342 26 60.5	63.0	67.8	66.5	64.45		40.556	30.154	56.0	47.3

Date.		Clock.	Hourly rate.	VALUE OF. m.	n.	c.	Error of runs.	Mic. coin. At.	
	h.	s.	s.	s.	s.	s.	″	h	revs.
Mar. 30,	8	f 33.717	g 020	— .175	+ .465	— .196			
31,	6	34.137	.025						
April 2,	8	36.210	.040						
5,	12	39.125	g .038						

1 rev. = 34″.515.

March 30, 8h. Adjusted microscope heads.
March 31, 5h. to 6h. Noise of masons working at a cistern rendered the clock beat sometimes inaudible.
April 3, 3h. Set up reversing apparatus. Observed for error of collimation and of level.
April 5. Took down reversing apparatus, and adjusted alidade circle in its former position.

COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic. Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
.27	— 30.59	+ 47.19	— 28.76	333 48 21.58	39.506	10 0 20.88	+ 12 42 0.83	+ 1.89	— 5.80		Mar.	30,	8.5h.	
.20	33.68					6 13 49.76	+ 22 35 ..	3.38		60.1	60.0	61.1	60.2	60.35
.52	33.69					6 38 29.95	— 16 32 ..	2.32		59.2	59.4	60.5	59.4	59.62
.20	33.70					7 11 6.59	+ 22 15 ..	3.06						
.11	33.70					7 24 58.02	32 13 ..	3.23		59.65	59.70	60.80	59.80	59.99
.32	33.71					7 31 24.30	5 36 ..	2.52						
.14	33.71					7 36 4.74	+ 28 23 ..	3.04			Mic.	39.429	—15	rdgs.
.60	33.72					8 1 7.71	— 23 53 ..	1.66						
.44	33.74	+ 38.00	1 1.55	313 5 38.66	39.429	9 20 11.03	— 8 0 42.10	1.72	+ 1.89					
.18	33.74	— 1 33.60	14.85	345 34 12.37		9 37 17.35	+ 24 27 51.62	2.26	— 7.96					
.30	33.77	+ 46.79	25.51	23 40 11.45	39.441	10 55 23.34	62 33 50.70	1.93	18.72					
.20	33.78	25.73	18.42	342 27 12.01		11 6 5.71	+ 21 20 51.86	1.79	10.75					
.49	33.78	+ 34.82	1 16.81	307 8 21.86		11 11 49.30	— 13 57 58.89	1.30	— 5.82		Mar.	30,	15.5h.	
5.83	34.00									59.1	58.0	60.0	59.2	59.08
.34	34 00					0 40 0.10				58.2	57.8	60.0	58.7	58.68
10.14	34.01					1 4 18.24	+ 88 30 ..	42.66		58.0	57.8	59.5	59.0	58.57
.02	34.12					5 5 32.44	45 50 ..	4.50						
.14	34.12					5 16 44.98	+ 28 28 ..	3.81		58.43	57.87	59.83	58.97	58.77
.37	34.12					5 24 17.61	— 0 25 ..	3.12						
6.29	34.13					5 26 4.13	17 56 ..	2.79			Mic.	39.489	—10	rdgs.
.38	34.13					5 28 33.06	— 1 18 ..	3.08						
.31	34.13					5 46 59.92	+ 7 22 ..	3.16						
.19	34.14	— 22.71	16.48	343 41 24.16	39.398	6 13 49.73	22 35 3.41	3.39	+ 7.42		Mar.	31, 8h.		
.24	34.15					6 28 59.61	16 31 ..	3.16		58.5	58.9	61.3	60.2	59.73
.26	34.15	+ 48.04	27.34	334 8 23.83		6 36 49.19	+ 13 2 3.08	3.03	8.85	59.4	59.7	61.1	59.0	59.80
13.13	34.16	58.81	2 16.32	292 19 43.27		6 52 41.83	— 28 46 36.48	1.96	20.21	59.4	59.5	61.1	60.0	60.00
.19	34.17	47.04	16.93	343 21 34.01		7 11 6.51	+ 22 15 13.26	3.07	2.90					
.55	34.17					7 25 41.02				59.10	59.37	61.17	59.73	59.84
.17	34.17	44.21	14.32	345 51 33.54		7 35 20.13	24 45 12.79	3.00	0.05					
5.99	34.21										Mic.	39.403	—10	rdgs.
14.62	34.21					9 1 24.89					Apr.	2, 8.5h.		
3.98	35.92									58.0	62.9	64.8	63.8	62.38
.33	35.92					0 47 16.59				58.3	63.2	64.5	63.1	62.27
6.18	36.03	49.94	10.95	344 57 43.77	39.423					58.7	62.5	63.8	63.4	62.10
		— 1 26.08	9.81	344 58 21.05		3 21 33.26	+ 23 51 41.66							
										58.33	62.87	64.36	63.43	62.25
.52	36.16	+ 28.27	1 23.78	304 35 12.61		6 38 29.92	— 16 31 8.14	2.37	17.13					
.65	36.16	+ 59.02	2 19.99	292 19 43.13		6 52 41.79	— 28 46 37.62	2.00	+ 20.09		Mic.	39.358	—10	rdgs.
.19	36.18					7 11 6.52	+ 22 15 ..	3.12						
.11	36.18	— 1 52.28	6.81	353 19 5.13		7 24 58.02	32 12 44.38	3.29	— 1.96					
5.83	36.19	+ 1 4.92	38.15	326 42 34.44		7 31 24.43	5 36 13.74	2.59	+ 6.03		Apr.	2, 14.5h		
12.57	36.19	2 32.97	10.79	349 29 22.71		7 36 4.68	+ 28 23 1.96	3.11	— 1.47	57.3	60.9	64.0	62.4	61.15
.60	36.21	25.89	1 53.01	297 13 38.01		8 1 7.63	— 23 52 42.74	1.74	+ 12.95	58.0	61.9	64.2	63.7	61.95
6.00	36.23	+ 58.33	21.61	339 48 31.19		8 36 6.85	+ 18 42 10.44	2.54	— 2.77					
.27	36.24	— 2.42	29.28	333 32 28.33		8 50 14.03	12 26 7.58	2.34	1.61	57.65	61.40	64.10	63.05	61.55
.23	36.25	+ 1 4.44	21.81	339 6 46.98		9 1 15.06	18 0 45.56				Mic.	39.399	—11	rdgs.
.23	36.25	1 43.10	— 21.80	339 7 25.65										
.13	36.26	+ 11.78	+ 8 39.43	334 23 25.31		9 31 37.26	13 17 4.56							
11.40	36.27	— 44.70	— 31.73	331 40 44.85		9 33 6.39	10 34 24.10	2.04	4.03					
.23	36.29	— 20.19	23.13	338 36 1.51		9 59 6.87	17 29 40.76	2.06	7.40					
5.83	38.71													
.32	38.71					0 58 12.25								
6.07	39.09	+ 29.52	— 18.60	342 27 15.37	39.701	11 6 5.56	+ 21 20 54.62	+ 18.3	— 11.39					

Object.	COR. IN R.A. Semi-diam.	Observed semi-diam. Hor.	Vert.
	m. s.	m s.	′ ″
an - - -		1 4.46	
oon - -	+ 1 9.85		
upiter - -		1.44	
an - - -		1 4.46	
enus - -	1.27		18.64
upiter - -		1.45	19.34
oon - -	+ 1 6.95		
an - - -		1 4.57	

6. Brightness varying.
7 to 10. Through clouds.
12, 35, 43. Unsteady.
35. + 1.″13 applied for defective illumination.
44. Transit observation not very good; made while persons were talking in the room.
47. Observed for dec. at 22m. 36s.
50, 51. High wind made it difficult to hear the clock beat.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	Mean.			READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h.	m.	s.	°	′	″	″	″	″	Wire	Revs.	In.	°	°
April 5	1	σ Leonis	28.5	39.5	50.5	1.6	12.8	23.9	34.9	11	14	1.67	327	56	54.8	58.7	61.2	60.4	58.78	IV.	41.800	30.158	55.5	47.3
	2	τ Leonis	..	..	40.2	50.5	1.4	12.4	24.4	11	21	1.78	324	47	29.7	32.7	36.7	36.3	33.85		40.668	30.160	55.4	46.8
	+3	β Leonis	28.0	39.3	50.7	1.9	13.5	24.4	36.0	11	42	1.97	336	29	54.6	57.2	60.9	60.2	58.08		42.660	30.170	55.0	46.0
	+4	Moon, 1st and N. L.	52.4	4.0	15.2	25.9	37.4	48.4	60.0	11	58	26.19	322	20	45.4	50.5	53.2	52.6	50.43		41.007	30.172	55.0	45.7
	5	η Virginis	19.2	30.3	40.9	51.9	2.7	14.0	24.8	12	12	51.97	321	17	29.5	27.8	33.7	34.2	31.30		39.408	30.176	54.4	45.4
	6	γ Virginis	8.5	20.3	30.7	41.4	52.3	3.5	14.7	12	34	41.63	320	31	0.2	0.2	5.2	6.8	3.10		39.182	30.172	54.2	44.7
	+7	α Coronæ Borealis	21.5	33.6	46.0	58.3	10.9	23.4	35.8	15	28	58.50												
	+8	α Serpentis	37.9	9.4	19.9	30.7	41.8	53.2	3.9	15	37	30.97												
7	9	Sun, 1st L.	26.7	36.8	48.4	59.5	10.5	21.7	32.6	1	4	59.46												
	10	Sun, 2d L.	35.4	46.6	57.7	8.8	19.8	30.8	42.0	1	7	8.73												
	+11	15 Argus	5.3	17.2	29.2	41.0	53.2	4.8	17.0	8	1	41.10	297	14	59.5	61.8	67.6	67.5	64.02		40.340	30.063	62.0	72.4
	+12	ι Ursæ Majoris	34.6	51.2	8.0	24.1	41.0	57.2	14.3	8	49	24.34	9	44	58.4	55.4	60.8	60.7	58.83		48.075	30.076	62.7	66.8
	13	ε Leonis	14.2	26.6	38.3	50.3	2.4	14.5	26.3	9	37	50.36	345	35	57.4	58.8	60.8	60.5	59.38		37.140	30.080	63.0	68.4
	+14	α Leonis	20.6	31.4	42.6	53.5	4.8	16.4	27.7	10	0	53.86	333	47	56.4	59.7	61.8	62.5	60.10		41.178	30.088	63.0	65.8
10	15	Jupiter, 1st and S. L.	2.4	14.3	25.7	36.3	48.4	0.2	11.3	9	1	36.94	339	6	3.0	6.5	7.2	8.8	6.37		41.335	29.734	60.2	59.5
	16	Jupiter, 2d and N. L.	5.3	..	28.6	39.8	51.3	3.2	14.3	9	1	43.75									42.492			
	17	α Hydræ	..	21.8	33.0	44.0	55.3	6.2	17.4	9	20	49.61	313	5	55.2	58.8	62.2	61.3	59.38		40.841	29.746	60.2	58.4
	18	ε Leonis	13.9	26.0	37.6	49.8	1.9	14.0	26.0	9	37	49.89	345	32	54.0	57.4	58.6	58.8	57.05		42.387	29.746	60.3	58.8
	+19	α Leonis	19.8	31.0	42.2	53.3	4.9	16.0	26.9	10	0	53.44	333	47	54.4	58.8	61.4	61.3	58.98		41.182	29.748	60.2	57.3
11	20	ε Canis Majoris	37.0	49.8	2.1	14.4	27.0	39.3	52.0	6	53	14.51												
	21	δ Geminorum	3.2	15.4	27.1	38.7	50.2	2.3	14.4	7	11	38.76	343	20	57.7	59.5	61.8	63.3	60.58		41.150	30.108	61.0	61.3
	22	α^2 Geminorum	51.3	4.2	17.2	30.0	43.0	56.0	9.1	7	25	30.11	353	20	59.0	59.9	61.0	60.8	60.18		36.620			60.9
	23	α Canis Minoris	..	35.0	46.0	56.4	7.7	19.0	29.9	7	32	2.33	326	41	57.0	65.2	65.7	63.9	62.95		41.730			60.6
	24	β Geminorum	59.6	12.2	24.5	36.2	49.4	2.0	14.2	7	36	36.87												
	25	15 Argus	4.3	16.4	28.5	40.2	52.2	4.4	16.3	8	1	40.33	297	14	58.5	62.5	67.0	67.5	63.88		40.414	30.118	61.0	59.2
	26	ε Hydræ	46.7	58.1	9.0	20.0	31.0	42.2	53.2	8	39	20.03	328	3	2.0	4.9	7.5	7.3	5.43		42.810	30.136	60.8	57.7
	27	ι Ursæ Majoris	33.7	50.9	7.0	23.2	40.0	57.0	13.4	8	49	23.60	9	41	59.7	55.7	60.7	61.8	59.48		43.285	30.142	60.8	56.5
	28	Jupiter, 1st and S. L.	4.2	16.1	27.4	39.0	50.4	2.3	..	9	1	33.25	339	5	59.1	61.9	64.9	64.9	62.70		41.077	30.148	60.5	55.8
	29	Jupiter, 2d and N. L.	7.4	19.0	30.3	42.0	53.4	5.4	..	9	1	36.25									42.265	30.148	60.5	55.8
	30	α Hydræ	10.7	21.9	32.9	43.8	54.7	6.0	17.2	9	20	43.89												
	31	η Ursæ Majoris	..	..	52.3	9.2	26.3	43.5	0.4	13	42	26.34												
	32	η Bootis	29.3	40.9	52.7	4.0	15.7	27.2	38.9	13	48	4.10												
	†33	α Bootis, (Ref.)	45.3	37.3	9.2	20.0	32.2	44.0	55.0	14	9	20.43												
14	†34	Jupiter, 1st L.	16.2	27.3	38.4	50.0	1.8	13.5	24.7	9	1	50.27												
	†35	α Hydræ	10.3	21.6	32.9	43.7	54.6	6.0	17.0	9	20	43.73												
	†36	ε Leonis	13.3	25.5	37.7	49.5	1.7	13.9	25.9	9	37	49.64												
	†37	β Leonis	21.2	32.8	44.0	55.0	6.7	18.2	29.7	11	41	55.40	336	29	52.3	57.2	60.5	60.8	57.70		42.436	30.064	42.6	32.0
16	38	α Tauri	..	..	..	47.4	59.3	10.7	22.2	4	28	4.90												
	39	δ Geminorum	3.2	15.1	26.6	38.4	50.4	2.4	14.3	7	11	38.63												
	40	α^2 Geminorum	51.0	4.4	17.3	29.9	43.0	56.0	9.0	7	25	30.09	353	17	56.5	55.7	58.5	58.8	57.38		41.982	29.768	51.0	46.3
	41	α Canis Minoris	23.4	34.7	45.5	56.5	7.5	18.8	29.7	7	31	56.59												
	42	β Geminorum	59.4	12.0	24.5	36.5	49.1	1.6	14.2	7	36	36.76	349	30	0.3	1.9	4.3	6.0	3.12		38.990	29.766	51.2	45.9
	†43	15 Argus	4.3	16.3	28.4	40.2	52.2	4.0	16.4	8	1	40.26	297	14	58.2	59.9	66.0	65.7	62.45		40.577	29.776	50.9	45.2
	†44	ε Hydræ	46.7	58.1	8.9	19.5	31.0	42.1	53.0	8	39	19.90	328	2	55.8	58.5	61.0	61.2	59.12		43.095	29.800	50.2	43.2
	†45	ι Ursæ Majoris	33.2	50.8	7.0	23.2	40.1	56.6	13.2	8	49	23.44	9	44	61.5	55.0	62.0	64.3	61.45		38.015	29.802	50.2	42.8
	46	Jupiter, S. L.											339	5	58.5	61.7	64.5	63.0	61.92		37.512	29.816	49.7	42.7
	47	Jupiter, N. L.																			38.665			
	48	α Hydræ	10.0	21.4	32.9	43.4	54.6	5.9	17.0	9	20	43.60												
	†49	α Coronæ Borealis	14.5	27.0	39.3	51.5	3.9	16.3	28.4	15	28	51.56												
19	†50	ε Hydræ	46.4	57.7	8.3	19.3	30.2	41.0	52.3	8	39	19.24	328	6	1.7	6.5	7.9	8.9	6.25		37.620	29.724	50.0	46.3
	†51	ι Ursæ Majoris	32.9	49.9	6.4	22.4	39.5	56.2	12.7	8	49	22.86	9	44	57.7	53.7	58.8	60.3	57.62		38.127	29.728	50.2	45.9
	†52	Jupiter, 1st and S. L.	48.2	0.0	11.4	22.2	34.1	46.1	57.4	9	2	22.77	339	6	0.0	1.9	5.3	5.2	3.10	IV.	34.294	29.730	50.0	45.8
	†53	Jupiter, 2d and N. L.	51.0	3.0	14.1	25.0	37.0	49.0	0.3	9	2	25.68									35.397			

Date.	Clock.	Hourly rate.	VALUE OF. m.	n.	c.	Error of runs.	Mic. coin. At.	
h.	s.	s.	s	s.	s.	″	h.	revs.
April 5, 12	f 39.125	g .038	— .175	+ .465	— .196	— 0.09		
7, 9	32.988	l .006	— .150	+ .513	— .196			
10, 10	32.583	.011						
11, 8	32.288	.009						
14, 10	32.413	.000						
16, 8	32.296	.004						
19, 10	31.753	.012						

1 rev. = 34″515.

April 6, 0h. Prof. Keith stopped the clock for a few seconds, and lengthened the pendulum two divisions.

COR. IN R.A.		COR. IN DEC.		Corrected Readings.	Mic. Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
.32	− 39.10	+ 1 12.46	− 36.82	327 57 34.41	39.701	11 14 22.25	+ 6 51 13.66	− 1.64	− 8.75		Apr.	5.		
11.30	39.10	31.32	41.55	324 47 23.60		11 20 11.38	3 41 2.58	1.59	8.47	60.7	62.1	62.2	61.2	61.55
.25	39.11	1 42.14	− 25.64	336 31 14.58		11 41 22.61	15 24 53.84	1.60	11.13	59.5	62.2	62.8	61.5	61.50
.37	39.12	+15 21.91	+17 49.86	322 54 2.19		11 58 49.94	1 47 41.44			58.8	61.9	62.0	61.2	60.98
.37	39.13	− 10.12	− 47.36	321 16 33.82		12 12 12.47	+ 0 10 13.07	1.44	9.92					
.37	39.14	− 17.90	48.78	320 28 56.42		12 34 2.12	− 0 37 25.33	1.39	− 10.62	59.67	62.06	63.33	61.30	61.34
.16	39.25					15 28 19.09	+ 27 13	1.20						
.31	39.25					15 36 51.41	+ 6 54	1.57			Mic.	39.662	—10	rdgs.
.28	33.04													
.28	33.04					1 5 30.57					Apr.	7.	9.5h.	
										58.4	62.7	63 6	61.5	61.55
.59	32.99	+ 22.60	− 1 47.98	297 13 18.64	39.685	8 1 7.52	− 23 53 42.11	1.83	+ 13.03	58.5	62.5	62.8	62.3	61.52
.13	32.99	− 55.57	+ 9.69	9 44 12.94		8 48 51.48	+ 48 37 52.29	3.29	− 13.77	58.9	62.7	63.7	61.9	61.80
.13	32.98	− 1 27.84	− 14.49	345 34 17.05		9 37 17.25	24 27 56.30	2.38	8.75					
.23	32.98	+ 51.53	27.80	333 48 22.72		10 0 20.65	12 42 2.97	2.05	− 6.59		Mic.	39.638	—10	rdgs.
.19	32.59	55.78	21.06	339 6 41.15	39.719	9 1 5.75	+ 18 0 40.37							
4.01	32.59	1 35.71	20.98	339 7 21.10							Apr	10.	10.5h.	
5.95	32.59	38.71	1 0.60	313 5 37.49		9 20 11.07	− 8 0 43.26	1.89	+ 2.03	0.4	3.5	3.5	2.9	2.57
0.13	32.59	1 32.08	14.60	345 34 15.53		9 37 17.15	+ 24 27 54.78	2.43	− 8.98	0.8	3.4	3.7	2.7	2.65
.23	32.58	50.48	27.99	333 48 21.48		10 0 20.63	+ 12 42 0.17	2.08	− 6.72					
.66	32.30					6 52 41.55	− 28 47	2.22		0.60	3.45	3.60	2.80	2.61
.15	32.29	+ 49.91	17.08	343 21 33.40	39.704	7 11 6.32	+ 22 15 12.65	3.30	+ 2.59					
.06	32.29	− 1 46.45	6.70	353 19 7.03		7 24 57.76	32 12 46.28	3.49	− 2.18		Mic.	39.644	—10	rdgs.
5.81	32.29	+ 1 9.93	37.57	326 42 35.31		7 31 24.23	5 36 14.56	2.75	+ 5.97					
0.09	32.29					7 36 4.49	+ 28 23	3.28	− 1.75					
.59	32.29	+ 24.50	1 50.96	297 13 37.42		8 1 7.45	− 23 52 43.33	1.91	+ 13.18		Apr.	11.	8.4h.	
.41	32.28	1 47.20	− 35.88	328 4 16.74		8 38 47.34	+ 6 58 55.99	2.43	+ 0.72	55.4	57.7	58.5	57.9	57.38
.13	32.28	2 3.60	+ 9.91	9 44 12.98		8 48 51.45	48 37 52.23	3.39	− 14.10	55.6	58.7	59.0	57.0	57.57
5.58	32.28	47 39	− 21.47	339 6 28.62		9 1 8.04	+ 18 0 28.38			55.50	58.20	58.75	57.45	57.47
5.58	32.28	1 28.39	21.45	339 7 9.63										
.43	32.28					9 20 11.04	− 8 1	1.90			Mic.	39.777	—10	rdgs.
16.87	32.71					13 41 36.76	+ 50 4	.67						
.18	32.71					13 48 31.21	19 9	1.29						
.59	32.71					14 8 48.03	+ 19 59	1.19			Apr.	11.	14.5h.	
.19	32.41					9 1 19.09				2.2	4.0	4.1	4.4	3.67
.42	32.41					9 20 10.90	− 8 1	1.93		1.7	5.6	4.4	3.2	3.73
.13	32.41					9 37 17.10	+ 24 28	2.47						
.21	32.41	1 37.59	26.31	336 31 8.98	39.609	11 41 22.78	15 24 48.23	1.64	11.93	1.95	4.80	4.25	3.80	3.70
17.28	32.31					4 27 15.31	16 12	3.88						
.15	32.30					7 11 6.18	22 15	3.37			Mic.	39.665	—10	rdgs.
.06	32.30	+ 1 17.64	6.82	353 19 8.20	39.732	7 24 57.73	32 12 47.45	3.57	2.28					
.30	32.30					7 31 23.99	5 36	2.81			Apr.	14.	12h	
.09	32.30	− 25.63	10.81	349 29 26.69		7 36 4.37	+ 28 23 5.94	3.36	− 1.89	59.7	63.3	62.8	61.4	61.80
.59	32.30	+ 29.15	1 52.86	297 13 38.86		8 1 7.37	− 23 52 41.95	1.99	+ 13.17	61.0	64.4	63.8	62.2	62.85
.28	32.29	+ 1 56.06	− 36.53	328 4 18.65		8 38 47·33	+ 6 57 57.90	2.49	+ 0.58	60.35	63.85	63.3	61.80	62.32
.13	32.29	− 59.35	+ 10.07	9 44 12.17		8 48 51.28	48 37 51.42	3.49	− 14.50					
.19	32.29	1 16.23	− 21.86	339 4 23.83		9 1	+ 17 58 22.78				Mic.	39.541	—10	rdgs.
.19	32.29	36.83	21.85	339 5 3.24										
.42	32.29					9 20 10.89	− 8 1	1.96			Apr.	16.	8 5h.	
.11	32.27					15 28 19.18	+ 27 13	0.99		58.6	60.5	61.4	60.2	60.175
.29	31.77	1 14.07	− 36.22	328 4 15.96	39.766	8 38 47.18	6 57 55.21	2.55	+ 0.30	58.9	60.8	61.3	60.5	60.38
										59.1	61.0	61.2	60.7	60.50
.14	31.77	56.57	+ 9.99	9 44 11.04		8 48 50.95	48 37 50.29	+ 3.57	− 14.83					
.19	31.76	3 8.62	− 21.70	339 2 32.78		9 1 52.25	+ 17 56 31.07			58.87	60.77	61.30	60.46	60.35
.19	31.76	− 2 30.55	− 21.69	339 3 10.86										

Object.	COR. IN R.A.	Observed Semi-diam.	
	Semi-diam.	Hor.	Vert.
	m. s.	m. s.	′ ″
loon . .	+ 1 3.24		
un . .		1 4.63	
upiter .		1.49	19.98
upiter .		1.51	20.50
upiter .	+ 1.42		
upiter .			19.71
upiter .		1.43	19.04

3, 49. Lamp out. Observed on a dark field.
4. Observed for dec. at 0m. 0s.
7, 8, 43, 44, 45, 50 to 53. Unsteady. 7, 8. Blurred.
11. Observed with full aperture.
12, 14. Very faint; varying in brightness.
19. Large, distended.
33. Mercury tremulous.
34 to 37. High wind; noise; difficult to hear the clock.
52. Observed for dec. at 3m. 1s.
53. Observed for dec. at 3m. 5s.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
April 19	1	α Hydræ	10.1	21.0	32.0	43.0	54.1	5.4	16.5	9 20 43.16	313 6 1.1	4.5	7.2	7.7	5.12	IV.	40.780	29.750	49.8	45.0
	2	ε Leonis	13.0	25.0	36.9	48.9	1.0	13.1	25.2	9 37 49.01	345 35 54.5	54.5	57.5	57.9	56.10		37.355	29.760	49.4	44.7
	3	α Leonis	19.2	30.1	41.0	52.3	3.7	15.0	26.4	10 0 52.53	333 51 0.5	4.0	6.1	6.4	4.25		35.934	29.764	48.9	44.8
	†4	α Ursæ Majoris . .	43.1	7.2	30.7	--	17.9	42.2	5.9	10 54 54.50	23 38 59.8	51.7	58.4	58.8	57.18		41.357	29.788	48.7	43.9
	5	δ Leonis	2.1	14.1	25.3	37.4	49.2	1.1	12.9	11 6 37.44	342 29 53.9	57.8	59.5	59.5	57.68		35.582	29.788	48.5	43.8
	6	δ Hydræ et Crateris .	47.4	59.0	10.1	21.3	32.5	44.1	55.4	11 12 21.40	307 8 41.8	45.4	52.2	50.7	47.52		41.249	29.788	48.4	43.7
	7	β Leonis	20.3	32.0	43.2	54.5	6.0	17.3	28.6	11 41 54.56	336 32 56.4	61.1	62.9	61.5	60.48		37.314			43.0
	8	γ Ursæ Majoris . .	28.2	47.2	6.1	24.4	43.7	2.6	21.5	11 46 24.71										
	†9								3.5		52 35 65.1	59.0	61.9	64.2	62.55		37.152	29.796	46.6	42.8
	10							4.0									37.414			
	11																37.562			
	12						6.0										37.630			
	13																37.724			
	†14	Polaris, S. P. .				11.0				13 2 45.32							37.730	29.806	46.2	42.8
	15																37.715			
	16				2.5												37.668			
	17																37.555			
	18			--													37.435			
	†19		5.0														37.061	29.810	46.3	42.7
	20	η Ursæ Majoris . .	17.4	34.5	51.5	8.2	25.4	42.4	59.4	13 42 8.40										
	21	Lalande, (25674) .	--	--	39.3	51.4	3.4	--	--	13 50 51.37	344 59 51.5	53.4	56.4	56.2	54.38	VI.	37.430	29.816	46.0	42.5
	22	Bessel's Zone, (412)	--	--	41.3	53.0	5.2	--	--	13 59 53.17							37.805	29.816	46.0	42.5
20	†23	Polaris	43.0	47.0	38.0	39.0	37.0	38.0	40.0	1 4 40.29										
21	24	α Tauri	12.0	23.5	34.9	46.2	57.7	9.2	20.4	4 27 46.27										
	†25	α Aurigæ	15.4	31.4	47.1	2.5	18.3	34.2	50.0	5 6 2.70										
23	†26	Sun, 1st and S. L. .	31.0	42.6	53.4	4.4	16.2	27.3	38.4	2 4 4.76	333 45 50.8	51.3	55.8	56.2	53.52	II	37.860			
	†27	Sun, 2d and N. L. .	41.7	53.2	4.4	15.4	27.0	38.2	49.2	2 6 15.59						VI.	42.695	30.086	58.2	70.0
	†28	α Tauri	10.5	22.2	33.4	44.5	56.2	7.4	19.2	4 27 44.77	337 17 56.5	60.2	62.2	61.6	60.08	IV.	40.798	30.013	61.8	70.8
30	†29	α Andromedæ . .	19.7	32.3	44.6	57.0	9.3	22.0	34.2	0 0 57.01										
	†30		39.0								49 35 63.5	54.7	61.4	66.3	61.48		39.259	30.127	62.0	68.8
	31			--													39.064			
	32				40												38.667			
	†33	Polaris . . .				32				1 6 0.80							38.595	30.120	62.0	70.0
	34						--										38.598			
	35							34.0									38.631			
	36																38.769			
	†37								39.0								39.000	30.120	62.5	71.0
May 1	38	Jupiter, 1st L. .	10.0	--	33.4	45.0	--	8.2	19.4	9 4 47.26										
	39	Jupiter, 2d L. . .	--	24.7	--	47.2	--	11.0	22.0	9 4 56.23										
	40	α Hydræ	59.2	10.2	21.0	32.4	43.4	54.5	5.4	9 20 32.30	313 5 56.2	59.7	63.0	61.9	60.20		40.854	30.165	66.2	67.5
	41	α Andromedæ . .	19.2	32.0	44.1	56.2	8.7	21.4	33.7	0 0 56.47										
	42	γ Pegasi	15.0	26.4	37.5	48.8	0.3	11.4	22.5	0 5 48.84										
2	†43	Venus, 1st L. . .	20.2	32.2	44.0	56.3	8.2	20.3	32.4	3 35 56.23										
	44	α Aurigæ	5.5	21.5	37.2	52.6	8.4	24.1	40.0	5 5 52.76										
	45	β Orionis	4.4	15.5	26.7	37.4	48.5	0.0	11.0	5 7 37.64										
	†46	ε Hydræ	35.1	46.0	57.2	8.0	19.2	30.3	41.4	8 39 8.17	328 5 58.4	64.0	65.0	64.5	62.98		37.710	30.406	67.0	65.3
	†47	ι Ursæ Majoris . .	22.0	39.0	55.0	11.4	28.4	45.1	1.3	8 49 11.74	9 44 58.4	51.5	57.4	57.8	56.28		38.180			
	48	Jupiter, 1st & S. L.	27.3	39.0	50.4	--	13.2	25.2	36.2	9 5 1.88										
	49	Jupiter, 2d & N. L.	--	41.3	--	4.1	--	27.2	39.0	9 5 12.90										
	50	α Hydræ	--	10.0	21.0	32.2	43.5	54.3	5.4	9 20 37.70	313 5 57.0	58.9	62.9	61.4	60.05		40.905			
	51	ε Leonis	1.9	14.0	25.9	37.3	50.0	2.1	14.2	9 37 37.91	345 35 57.3	59.1	62.6	60.8	59.95		37.202			
	52	Anonymous . .	54.0	--	18.5	--	--	--	--	10 29 06.25	317 17 59.0	61.8	65.2	63.4	62.35		38.748	30.420	65.5	58.9

Date.	Clock.	Hora	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At.	
h.	s.	s.	s.	s.	s.	″	h.	revs.
April 19, 10	f 31.753	l .012	— .150	+ .513	— .196			
21, 5	30.873	.010						
23, 5	30.808	.005				— 1.88		
30, 0	21.590	.027	— .149	+ .382	— .196			
May 1, 0	21.000	.016						
2, 8	20.920	.003						

1 rev. = 34.515″

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m s.	° ′ ″	s.	″	″	′	″	″	″
1	− .42	− 31.76	+ 35.00	− 1 02.27	313 5 37.85	39.766	9 20 10.98	− 8 0 42.90	+ 2.01	+ 2.01		April	16.	14 5h.	
2	.13	31.75	− 1 23.22	15.0[illegible]	345 34 17.85		9 37 17.13	+ 24 27 57.10	2.55	− 9.78	61.0	61.0	63.7	62.8	62.82
3	− .24	31.75	− 2 12.26	− 28.72	333 4[illegible] 23.27		10 0 20.54	12 42 2.52	2.18	8.24	62.4	64.3	64.7	62.4	63.45
4	+ .3[illegible]	31.74	+ 54.91	+ 25.67	23 40 17.76		10 54 23.12	62 33 57.01	2.37	23.3[illegible]					
5	− .17	31.74	− 2 24.41	− 18.52	342 27 14.74		11 6 5.5[illegible]	+ 21 20 53.99	1.94	12.97	61.70	62.65	64.2	62.6	63.14
6	.48	31.74	+ 51.19	1 17.16	3[illegible]7 8 21.54		11 11 49.18	− 13 57 59.2[illegible]	1.43	4.55		Mic.	39.653	−10	rdgs.
7	− .21	31.75	− 1 24.63	− 25.48	336 31 10.37		11 41 22.62	+ 15 24 49.62	1.67	− 12.43					
8	+ .23	31.75					11 45 53.18	54 32	1.67			April	19.	10.5h.	
9			1 8.05	+ 1 16.65	52 36 11.05						56.5	60.4	61.4	61.7	60.00
10			1 11.43	1 16.64	7.76						57.7	60.8	61.6	60.5	60.15
11			1 9.32	1 16.63	7.76						58.5	60.4	61.4	60.9	60.30
12			1 11.38	1 16.62	7.79										
13			1 9.98	1 16.61	9.18						57.57	60.53	61.47	61.03	60.15
14	2 6.96	31.72	1 10.26	1 16.60	8.89		13 4 20.56	88 30 11.85	41.27	+ 24.10					
15			1 10.22	1 16.60	8.93							Mic.	39.763	−10	rdgs.
16			1 9.75	1 16.60	9.40										
17			1 10.51	1 16.60	8.64										
18			1 9.46	1 16 60	9.69										
19			− 1 10.35	+ 1 16.60	8.80										
20	+ .1[illegible]	31.71					13 41 36.85	50 4	0.62			April	23.	2.5h.	
											57.7	61.0	60.6	59.5	59.70
21	− .08	31.71	+13 9.82	− 15.52	344 58 17.96		13 50 19.58	24 6 27.93	1.19	− 13.0[illegible]	58.7	60.7	60.9	59.9	60.05
22	− .0[illegible]	31.71	+13 22.77	15.52	345 13 1.65		13 59 21.38	24 6 40.88	1.15	− 12.72					
23	+ 11.98	31.32					1 4 21.95	88 30	40.89		58.20	60.85	60.75	59.70	59.88
24	− .20	30.88					4 27 15.19	16 12	3.94						
25	+ .10	30.87					5 5 31.93	45 50	4.93			Mic	39.706	−5	rdgs.
26	− .24	29.46	−15 36.72	24.24	333 29 52.56	39.702	2 4 40.48	12 39 28 28				May	1.	3.5h.	
27	.24	29.46	+16 15.63	23.66	334 1 45.50						59.2	62.4	63.8	60.2	61.40
28	.21		+ 38.01	23.40	337 18 0.26		4 27	16 11 53.93	3.95	+ 18.08	60.4	62.7	62.9	61.4	61.85
29	.16	21.59					0 0 35.26	28 15	3.27						
30			− 38.45	1 6.15	49 36 29.18						59.8[illegible]	62.55	63.35	60.80	61.62
31			38.02	1 6.09	29.55										
32			38.64	1 6.03	28.87							Mic.	39.665	−10	rdgs.
33	1 16.01	21.56	39.27	1 5.97	28.1[illegible]	39.712	1 4 23.23	+ 88 30 8.04	37.33	27.18					
34			38.45	1 5.94	28.97							May	2.	10h.	
35			37.89	1 5.91	29.50						58.4	59.0	58.6	57.2	58.30
36			38.95	1 5.88	28.4[illegible]						58.3	59.7	59.6	58.0	58.90
37			− 38.6[illegible]	+ 1 5.85	28.65						59.0	59.7	59.8	58.5	59.25
38	2.51	21.14									58.57	59.47	59.33	57.9[illegible]	58.82
39	8.86	21.14					9 4 24.92								
40	.40	21.14	+ 39.76	− 1 0.36	313 5 39.60		9 20 10.76	− 8 0 41.15	2.19	+ 1.74		Mic.	39.756	−10	rdgs.
41	.17	21.00					0 0 35.30	+ 28 15	3.25						
42	.25	21.00					0 5 27.59	14 21	3.34						
43	.19	20.93					3 35 37 10	24 38							
44	.01	20.93					5 5 31.79	45 50	5.04						
45	.38	20.93					5 7 16.33	− 8 23	3.47						
46	.30	20.92	− 1 9.54	− 35.66	328 4 17.97	39.722	8 38 46.95	+ 6 57 57.22	2.75	− 0.25					
47	.01	20.92	− 53.98	+ 9.85	9 44 12.15		8 48 51.40	48 37 52.15	3.91	− 15.50					
48	.25	20.92						17 43							
49	8.86	20.92					9 4 41.91								
50	5.93	20.92	+ 40.83	− 1 1.40	313 5 39.49		9 20 10.85	− 8 0 41.26	2.22	+ 1.67					
51	− .19	20.92	− 1 26.98	14.8[illegible]	345 34 18.15		9 37 16.80	+ 24 27 57.40	2.76	− 10.81					
52	+ 21.61	− 20.91	− 32.62	− 53.50	317 16 36.23		10 28 6.95	− 3 49 44.52	+ 1.93	− 4.47					

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
26	Sun . .		1 5.41	15 56.47
38	Jupiter .		1.31	
43	Venus .	+ 1.99		
48	Jupiter .		1.21	17.04

4. Observed for dec. at 54m. 54s.
9 to 19. Observed for dec. at 44m. 4s., 51m. 4s., 54m. 38s., 58m. 6s., 1m. 44s., 5m. 11s., 8m. 35s., 12m. 3s., 15m. 30s., 19m. 30s., 26m. 5s.
23, 25, 26, 27, 29, 43. Unsteady
28. Observed for dec. at 27m. 20s.
30 to 37. Clouded at transit wires II and V. Observed for declination at 43m. 39s., 47m. 12s., 57m. 40s., 1m. 0s., 4m. 32s., 8m. 0s., 15m. 55s., 18m. 34s., 21m. 20s.
46. Very faint. Observed for dec. at 39m. 43s.
47. At wires V, VI, VII faint. Observed for dec. at 50m. 4s.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THER'S. At.	Ex.
1849.			s	s.	s	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
May 2	1	Anonymous . .	29.0	40.4	51.5	--	--	24.7	--	10 29 51.40	317 17 59.0	61.8	65.2	63.4	62.35	VII.	40.880	30.418	65.2	58.1
	2	Weisse X, 637 .	13.4	24.6	35.6	--	57.5	8.2	19.4	10 35 46.45	317 26 59.2	61.8	65.2	64.5	62.67	IV.	44.760	30.41[illegible]	65.2	58.1
	3	Weisse X, 859 .	41.[illegible]	--	3.4	14.0	24.0	35.2	46.5	10 47 17.35	320 20 59.2	62.0	66.3	64.4	62.98	IV.	44.905	30.420	65.0	58.1
	4	Lalande, (21026) .	--	24.4	35.5	46.0	57.4	8.4	19.2	10 48 51.82						III.	44.852	30.422	65.0	58.1
	5	δ Leonis	51.0	3.2	14.8	26.3	38.4	50.3	2.0	11 6 26.57										
	6	σ Leonis	10.4	21.4	32.5	43.5	54.5	5.5	16.7	11 13 43.50	327 56 57.9	61.5	64.0	62.8	61.55	IV	41.788	30.42[illegible]	64.7	57.6
	7	γ Cephei, S. P. . .	57.0	8.2	20.3	33.2	45.0	56.7	8.8	11 33 32.74	64 14 51.3	41.8	54.2	52.0	32.74		43.718	30.426	63.8	55.4
	†8	Moon, 1st & N. L.	--	--	12.8	23.8	35.4	46.4	57.4	11 42 35.16	324 2 28.2	30.4	32.2	29.8	30.15		39.60[illegible]	30.42[illegible]	63.0	54.9
	9	η Virginis . . .	0.6	12.1	22.9	33.4	44.5	55.6	6.7	12 12 33.69	321 17 59.2	57.9	62.2	63.7	60.75		38.538	30.426	62.7	57.3
	†10								53.0		52 35 59.0	51.4	55.8	57.7	55.97		37.704	30.422	61.2	54.9
	11							51.0									37.829			
	12						52.5										37.938	30.422	60.7	54.7
	13																37.977			
	†14	Polaris, S. P. .				56.0				13 4 52.21							38.009	30.422	60.3	54.4
	15																37.981			
	16				51.0												37.943			
	17			46.0													37.814	30.428	59.7	53.8
	†18		56.0														37.673			
	19	Anonymous . .	--	28.2	40.5	52.2	4.4	16.1	27.0	13 41 58.07	343 44 56.2	56.4	57.5	59.8	57.48	V.	43.455	30.432	59.0	53.4
	20	Anonymous . .	--	--	--	36.0	47.8	59.9	11.6	13 43 53.82							37.690	30.434	58.9	53.3
	21	Anonymous . .	--	--	39.7	51.0	3.4	15.4	26.2	13 55 3.14	345 2 58.8	61.4	63.2	64.0	61.85	IV.	39.369	30.442	58.0	52.6
	22	Anonymous . .	--	--	--	--	56.3	8.6	----	13 57 2.45						III.	38.984			
	23	Anonymous . .	--	0.2	11.3	23.4	35.4	47.8	0.0	13 59 29.68						IV.	38.755			
3	†24		37.0								49 35 64.3	56.7	64.2	65.5	62.67		38.569	30.214		77.7
	†25			43.0											62.87		38.499			
	26														63.07		38.494			
	27				37.0										63.26		38.522			
	28														63.46		38.538			
	†29	Polaris . . .				30.0				1 4 36.00					63.65		38.507			76.8
	30														63.84		38.495			
	31						35.0								64.04		38.484			
	32														64.23		38.510			
	†33							34.0							64.42		38.478			
	†34								36.0		66.4	59.2	64.9	68.0	64.62		38.529	30.212	64.8	79.5
	35	α Arietis	24.8	37.0	48.5	0.4	12.4	24.3	36.2	1 59 0.51										
4	†36	Sun, 1st L. . .	6.4	18.3	29.4	40.6	52.4	3.7	14.8	2 45 40.80										
	†37	Sun, 2d L. . .	--	30.6	41.6	53.3	4.6	16.6	26.9	2 47 59.10										
	†38	α Tauri	1.6	13.1	24.5	35.7	47.3	58.7	10.2	4 27 35.87	337 17 58.2	63.0	63.9	62.8	61.98		40.787	30.156	69.0	79.3
	39	α Aurigæ . . .	5.4	21.4	36.4	--	--	--	39.4	5 5 40.65	6 56 61.4	57.0	60.4	61.0	59.95		38.817	30.152	71.0	82.9
	40	β Orionis	--	15.5	26.4	37.3	48.8	59.4	10.5	5 7 42.98										
	41	α Ursæ Majoris . .	31.6	55.7	19.0	42.4	6.[illegible]	30.6	54.3	10 54 42.87	23 38 57.7	51.0	56.2	56.1	55 25		41.560	30.088	70.0	73.4
	42	δ Leonis	--	--	--	25.7	37.5	49.4	1.2	11 6 43.45	342 26 57.7	60.8	64.5	65.1	62.03		40.761	30.092	70.4	73.9
	43	β Leonis	9.1	20.4	31.7	43.0	54.0	6.0	17.4	11 41 43.09	336 32 56.8	60.4	62.7	61.5	60.35		37.343	30.110	72.2	73.8
	44	η Virginis . . .	0.3	11.4	22.3	33.1	44.2	--	6.2	12 12 29.58										
	†45		39.0								49 35 63.8	56.0	62.4	65.0	61.80		38.881	30.138	72.7	80.0
	46														62.45		38.761			
	47			44.0											63.11		38.608			
	48				38.0										63.76		38.528	30.137	73.7	81.1
	†49	Polaris . . .				29.0				1 4 37.29	66.5	59.5	63.7	68.0	64.42		38.517			
	50						34.5								64.36		38.537			
	51							37.0							64.29		38.598	30.140	74.8	82.0
	52														64.22		38.668			
	†53								39.5		66.0	59.0	63.9	67.7	64.15		38.807	30.142	75.5	82.7

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
May 2, 8	f 20.920	l .003	— .149	+ .382	— .196			
3, 1	20.873	.018	+ .026	+ .415	— .196			
4, 4	20.819	.018						
8, 10						— .53		

1 rev. = 34″.515

COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic. Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Revs	h. m. s.	° ′ ″	s.	″					
10.57	— 20.91	+21 3.37	— 52.83	317 38 12.89	39.722	10 29 41.06	— 3 28 7.86	+ 1.93	— 4.47		May	4.	3.5h.	
.40	20.91	2 53.54	51.93	317 29 4.28		10 35 25.14	3 37 16.47	1.92	5.02	58″3	60″7	61″9	59″0	59″98
3.98	20.91	+ 2 58.55	46.92	320 23 14.61		10 46 52.46	0 43 6.14	1.91	6.60	58.3	60.8	61.9	59.4	60.10
5.83	20.91	— 2 54.98	47.09	320 17 20.91		10 48 25.08	— 0 48 59.84	1.89	6.66	58.5	60.8	61.9	59.5	60.17
.21	20.91					11 6 5.45	+ 21 21	2.09						
.30	20.91	+ 1 11.31	36.38	327 57 36.48		11 13 22.29	6 51 15.73	1.86	— 10.21	58.37	60.76	61.90	59.30	60.08
.97	20 91	2 17.92	+ 2 0.69	64 19 8.38		11 33 10.86	76 47 12.37	3.04	+ 31.60					
11.34	20.91	+ 0 1.12	+16 43.4	324 19 14.74		11 43 6.12	3 12 53.99				Mic.	39.717	—10	rdgs.
.34	20.91	— 40.87	— 46.63	321 16 33.25		12 12 12.44	0 10 12.50	1.52	— 10.83					
		59.71	+ 1 16.48	52 36 12.74										
		60.09	1 16.40	12.28										
		59.23	1 16.32	13.06										
		59.69	1 16.34	12.62							May	4.	10.5h.	
7.26	20.90	59.11	1 16.37	13.23		13 4 24.05	88 30 7.74	36.84	+ 27.75	56.0	60.1	60.1	57.4	58.40
		59.38	1 16.41	13.00						57.0	59.7	60.2	57.0	58.48
		58.73	1 16.45	13.69						56.50	59.90	60.15	57.20	58.44
		57.95	1 16.48	14.50										
		— 60.46	+ 1 16.48	11.99										
6.14	20.90	+ 7 58.29	— 1 16.80	343 52 38.97		13 41 31.03	22 46 18.22	1.14	— 15.44		Mic.	39.787	—10	rdgs.
17.98	20.90	+ 4 39.32	16.85	343 49 19.95		13 43 14.94	22 42 59.20	1.14	15.28					
12.21	20.90	— 12.18	15.52	345 2 34.15		13 54 30.03	23 56 13.40	1.13	15.21					
18.19	20.90	6 17.51	15.63	344 56 28.71		13 56 23.36	23 50 7.96	1.12	15.08					
6.21	20.90	33.38	— 15.52	345 2 12.95		13 59 2.57	23 55 52.20	1.11	— 15.05					
		42.17	+ 1 5.21	49 36 25.71							May	5.	3.5h	
		42.70	1 5.23	25.40						58.7	62.8	62.4	60.4	61.08
		42.44	1 5.25	25.88						59.0	63.0	62.9	60.6	61.37
		41.37	1 5.27	27.16						58.9	62.7	63.0	60.7	61.32
		40.75	1 5.29	28.00						58.87	62.83	62.77	60.57	61.26
8.40	20.87	41.85	1 5.32	27.12	39.719	1 4 23.53	88 30 5.55	36.26	+ 28.06					
		42.37	1 5.25	26.72							Mic.	39.677	—10	rdgs
		43.08	1 5.19	26.15										
		42.72	1 5.13	26.64										
		44.61	1 5.07	24.88										
		44.06	1 4.99	25.61										
.01	20.86					1 58 39.64	22 45	3.87						
.06	20.84													
5.76	20.84					2 46 26.23								
.06	20.81	+ 36.84	— 23.13	337 18 15.69	39.719	4 27 15.00	16 11 54.94	3.99	17.93					
11.58	20.80	— 31.15	+ 6.69	6.56 35.49		5 5 31.43	+ 45 50 14.74	5.07	+ 8.98					
5.77	20.80					5 7 16.41	— 8 23	3.50						
.41	20.69	+ 1 2.77	+ 24.45	23 40 22.47	39.742	10 54 22.59	+ 62 34 1.72	2.86	— 26.13					
17.64	20.69	+ 35 19	— 17.52	342 27 19.59		11 6 5.12	21 20 58.86	2.12	14.72					
.06	20.68	— 1 22.78	— 24.22	336 31 13.35		11 41 22.35	+ 15 24 52.60	1.81	— 14.09					
3.48	20.67					12 12 12.39	— 9 50	1.55						
		39.35	+ 1 4.74	49 36 27.19										
		39.80	1 4.69	27.34										
		41.54	1 4.64	26.21										
		43.06	1 4.59	25.29										
8.40	— 20.44	42.28	1 4.56	26.70		1 4 25.25	+ 88 30 5.74	+ 35.78	+ 28.31					
		42.45	1 4.52	26.43										
		41.89	1 4.48	26.88										
		42.59	1 4.45	26.08										
		— 42.23	+ 1 4.41	26.33										

Object.	COR. IN R. A.	Observed Semi-diam.	
	Semi-diam.	Hor.	Vert.
	m. s.	m. s.	′ ″
oon .	+ 1 3.21		
n . .		1 6.30	

8. Observed for dec. at 43m. 58s.
10 to 18. Observed for dec. at 50m. 51s., 54m. 32s., 58m. 0s., 1m. 30s., 5m. 2s., 8m. 28s., 11m. 58s., 15m. 28s., 18m. 54s.
24 to 34. Observed for dec. at 57m. 50s., 1m. 28s., 3m. 0s., 3m. 39s., 4m. 6s , 5m. 17s., 6m. 18s., 7m. 43s., 9m. 10s., 10m. 39s., 12m. 19s.
24 to 38. Hazy.
45 to 53. Observed for dec. at 51m 4s., 54m. 0s., 57m. 55s., 0m. 1s., 4m. 54s., 8m. 52s., 11m. 37s,, 15m. 9s., 18m. 42s.
25 to 33, 46 to 48, 50 to 52. Circle readings interpolated.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THER'S. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″		Revs.	In.	°	°
May 9	† 1	β Leonis	7.1	18.7	30.3	41.0	52.2	4.1	15.4	11 41 41.26	336 32 48.2	51.5	54.0	52.2	51.47	IV.	37.535	30.006	65.2	60.0
	2	η Virginis	--	9.4	20.5	31.0	42.3	53.4	4.5	12 12 36.85	321 17 50.2	50.0	55.9	55.3	52.85		38.807	30.004	64.9	58.0
	3	β Corvi	13.1	25.0	36.9	49.0	0.7	12.8	24.4	12 26 48.84	298 32 50.2	51.0	56.0	54.7	52.98		42.080			57.5
	4	α Cassiopeiæ, S. P.	15.0	55.4	36.2	16.8	57.0	38.0	--	12 32 26.40										
	† 5	Polaris, S. P.							57.0		52 35 64.6	57.5	60.8	61.3	61.05		37.289	29.994	63.2	56.1
	6																37.602			
	7							55.0			64.9	58.5	61.5	62.7	61.90		37.737	29.992	63.0	55.8
	8																37.830			
	9						56.5										37.917			
	†10					2.0				13 4 54.64							37.920			
	11				52.0						64.5	58.2	62.2	63.4	62.08		37.894	29.994	62.0	56.7
	12																37.849			
	13			48.0													37.745			
	14																37.598			
	†15		52.0														37.249			
	†16	η Ursæ Majoris	4.2	21.5	38.3	55.2	12.6	29.4	46.7	13 41 55.41										
	†17	η Bootis	15.5	27.0	38.5	50.0	1.9	13.4	25.0	13 47 50.19										
	18	α Bootis	32.4	44.0	55.4	6.9	18.9	30.8	41.9	14 9 7.19										
	19	ε Bootis	7.0	19.4	31.4	43.8	56.3	9.0	21.2	14 38 44.01	348 47 56.8	57.4	60.4	61.7	59.08		42.144	30.000	61.0	57.0
	†20	α^2 Libræ	19.1	30.5	42.0	53.0	4.6	16.1	27.4	14 42 53.24	305 41 64.5	55.6	59.7	61.8	60.40		41.395	30.004	61.0	56.7
	†21	β Ursæ Minoris	27.7	10.0	51.5	33.0	14.8	56.7	38.5	14 51 33.17	35 50 54.0	45.0	51.2	53.8	51.00		41.868	30.004	61.0	56.2
	22	β Libræ	41.0	52.4	3.3	14.4	25.4	36.5	47.6	15 9 14.37	312 17 54.5	56.5	59.8	57.9	57.18		39.972	30.006	61.0	55.3
	23	α Coronæ Borealis	1.3	13.5	26.0	38.4	50.8	3.0	15.1	15 28 38.30	348 20 57.7	59.0	61.4	62.1	60.05		38.277	30.004	61.0	54.7
11	†24	α Andromedæ	16.1	28.4	41.2	53.5	6.0	18.5	30.7	0 0 53.49	349 20 56.7	57.2	60.0	60.4	58.58		41.218	29.972	57.9	56.3
	†25	α Cassiopeiæ	17.5	37.0	56.4	15.3	35.2	54.4	14.3	0 32 15.73	16 47 62.9	55.0	60.6	61.9	60.10		40.327	29.976	57.8	58.4
	†26	Polaris	41.0								49 35 62.4	55.7	62.8	64.2	61.27		39.167	29.978	58.0	58.9
	27																38.985			
	28			43.0													38.818			
	29																38.695			
	30				35.0						63.2	55.5	62.0	63.9	61.15		38.545	29.978	58.2	59.6
	31																38.584			
	†32					35.0				1 4 39.43							38.545			
	33																38.538			
	34						39.0										38.607	29.974	58.5	60.7
	35										62.7	55.4	62.4	64.4	61.12		38.685			
	36							40.0									38.860			
	37																39.025			
	†38								36.0								39.255	29.968	59.4	60.8
12	†39	Sun, 1st & N. L.	6.2	17.7	29.6	40.8	52.7	4.2	15.5	3 16 40.96	339 21 35.8	37.9	41.2	41.0	38.98	VI.	39.910	29.954	62.3	65.9
	40	Sun, 2d & S. L.	20.2	--	43.2	54.9	6.6	18.1	29.3	3 18 58.72						II.	35.427			
	41	α Aurigæ	--	18.1	33.4	49.2	5.4	21.0	36.5	5 5 57.27										
15	42	α Bootis	30.2	42.0	53.5	5.0	16.9	28.6	40.0	14 9 5.17										
	43	β Ursæ Minoris	26.0	9.0	50.2	31.5	13.7	55.4	36.8	14 51 31.80	35 50 61.8	54.4	60.5	62.0	59.68	IV.	41.584	29.902	60.0	51.4
	†44	β Libræ	39.2	50.6	1.2	12.5	23.4	34.7	45.6	15 9 12.46	312 17 59.4	63.3	65.8	63.4	62.98		39.648	29.902	59.5	50.7
	45	α Serpentis	35.7	47.0	57.8	8.0	20.2	31.0	42.2	15 37 8.84	328 0 0.7	2.9	5.7	3.6	3.22		41.710	29.906	58.2	50.0
	46	ζ Ursæ Minoris	12.8	7.0	0.5	53.7	48.0	42.0	36.3	15 49 54.33	39 20 60.5	53.9	57.8	59.5	57.93		39.750	29.900	57.0	48.9
	47	β^1 Scorpii	24.5	36.4	47.7	59.4	11.0	22.8	34.2	15 56 59.43	301 45 1.8	4.9	9.8	8.0	6.13		39.000	29.898	56.8	48.4
	48	δ Ophiuchi	12.2	23.5	34.5	45.0	56.3	7.4	18.0	16 6 45.27	317 47 52.7	55.0	59.7	58.3	56.43		41.917	29.898	56.5	47.7
	49	α Scorpii	52.4	4.8	16.9	29.2	41.2	53.5	5.5	16 20 29.07	295 2 57.0	56.5	62.5	60.3	59.08		39.704	29.902	55.4	48.0
17	50	Sun, 1st & S. L.	47.7	59.8	11.2	22.4	34.3	46.1	57.6	3 26 22.73	340 29 58.2	62.5	64.3	63.9	62.22	II.	39.900	30.070		64.0
	51	Sun, 2d & N. L.	2.4	14.4	25.6	37.4	49.0	0.8	12.6	3 38 37.46	58.2	62.7	64.5	63.3	62.18	V.	44.340		65.0	57.0
	52	β Corvi	10.8	22.6	34.5	46.1	58.2	10.4	21.7	12 26 46.33										

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At.	
h.	s.	s.	s.	s.	s.	″	h.	revs.
May 9, 14	f 18.860	l .015	+ .026	+ .415	— .196			
11, 2	17.949	.016						
15, 15	16.772	.010						
17, 14	16.453	.006						

1 rev. = 34″.515

COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s	° ′ ″	s.	″	″	″	″	″	°
— .06	— 18.89	— 1 15.11	— 24.80	336 31 11.56	39.711	11 41 22.31	+ 15 24 50.81	+ 1.85	— 14.57		May	9.	11.5*h.*	
5.72	18.89	— 31.21	45.91	321 16 35.73		12 12 12.24	+ 0 10 14.98	1.58	11.24	60.4	62.9	62.8	61.9	62.00
.36	18.88	+ 1 21.76	— 1 44.94	298 32 29.83		12 26 29.60	— 22 33 50.92	1.25	— 6.73	60.4	62.7	63.0	61.2	61.82
9.96	18.88					12 31 57.56	+ 55 42	3.50		60.2	62.2	63.0	61.5	61.72
		— 1 1.70	+ 1 15.02	52 36 14.37						60.33	62.60	62.93	61.54	61.85
		1 3.08	1 15.05	13.02							Mic.	39.658	—10	rdgs.
		1 2.68	1 15.07	14.29										
		1 2.61	1 15.05	14.34										
		1 1.91	1 15.02	15.02										
— 8.35	18.87	1 1.42	1 14.98	15.46		13 4 27.42	88 30 6.04	33.24	+ 29.28					
		1 1.74	1 14.97	15.31							May	12.	3.8*h.*	
		1 1.56	1 14.96	15.48						58.5	63.7	63.6	62.5	62.08
		1 1.76	1 14.95	15.27						60.7	62.7	63.6	60.4	61 85
		1 2.67	1 14.95	14.36						60.2	62.7	63.7	61.0	61.90
		1 2.18	1 14.94	14.84										
+ .22	18.87					13 41 36.76	50 4	0.69		59.80	63.03	63.63	61.30	61.94
— .04	18.86					13 47 31.29	19 9	1.20			Mic.	39.644	—10	rdgs.
— .03	18.86					14 8 48.30	19 58	1.04						
+ .02	18.85	+ 1 23.97	— 11.35	348 49 11.69		14 38 25.18	+ 27 42 50.94	0.87	— 15.09					
— .29	18.85	58.12	— 1 19.77	305 41 38.75		14 42 34.10	— 15 24 42.00	+ 1.17	11.67					
+ .81	18.85	1 44.44	+ 41.58	35 52 46.99		14 51 15.13	+ 74 46 26.94	— 3.59	19.24		May	17.	14.5*h.*	
— .24	18.85	+ 9.00	— 1 03.26	312 17 2.92		15 8 55.28	— 8 49 17.83	+ 1.18	11 74	2.4	3.7	4.9	3.0	3.50
+ .03	18.84	— 49.50	11.91	348 19 58.64		15 28 19.49	+ 27 13 37.89	0.72	— 11.95	2.4	3.5	4.5	2.5	3.22
.03	17.98	+ 52.39	— 10.80	349 21 40.17	39.700	0 0 35.54	28 15 19.42	2.99	+ 27.78					
.29	17.97	+ 21.64	+ 17.29	16 48 39.03		0 31 58.05	55 42 18.28	3.40	31.52	2.40	3.60	4.70	2.75	3.62
		— 41.04	1 7.10	49 36 27.33							Mic.	39.656	—10	rdgs.
		39.78	1 7.07	28.56										
		39.05	1 7.03	29.25										
		40.25	1 7.00	28.02										
		41.95	1 6.96	26.16							May	19. 4*h.*		
		39.06	1 6.92	29.01						59.5	62.4	59.7	62.4	61.00
+ 8.40	17.96	39.86	1 6.90	28.19		13 4 29.87	88 30 7.45	31.94	+ 29.97	58.8	61.7	61.1	60.4	60.75
		40.68	1 6.87	27.34										
		40.28	1 6.84	27.71						59.15	62.05	60.90	61.90	61.00
		40.48	1 6.84	27.48							Mic.	39.732	—5	rdgs.
		38.88	1 6.84	29.08										
		39.50	1 6.83	28.45										
		— 37.96	+ 1 6.83	29.99										
— .04	17.93	+14 39.01	— 18.05	339 35 45.44		3 17 29.99	18 13 48.84				May	19.	10.5*h*	
3.86	17.93	—17 1.19	— 18.56	339 4 16.84						60.0	62.5	64.0	61.3	61.95
7.47	17.90					5 5 31.90	45 50	5.09		59.5	62.5	63.9	60.7	61.65
— .03	16.78					14 8 48.36	19 58	+ 1.04		60.7	62.9	63.5	60.2	61.83
+ .81	16.77	+ 1 2.84	+ 41.82	35 52 44.33	39.764	14 51 15.84	+ 74 46 23.58	— 3.53	— 21.09					
— .24	16.77	— 3.98	— 1 03.61	312 16 55.38		15 8 55.45	— 8 49 25.37	+ 1.12	11.92	60.07	62.63	63.80	60.73	61.81
— .12	16.77	+ 1 7.18	— 36.24	328 0 34.17		15 36 51.95	+ 6 54 13.42	+ 1.00	11.74					
+ 1.06	16.76	— .46	+ 47.66	39 21 45.12		15 49 38.63	+ 78 15 24.37	— 6.82	14.89		Mic.	39.663	—10	rdgs.
— .33	16.76	— 26 35	— 1 33.84	301 43 5.94		15 56 42.34	— 19 23 14.81	+ 1.19	11.37					
.20	16.76	+ 1 14.33	52.79	317 48 17.96		16 6 28.31	3 18 2.79	1.10	10.68					
.40	16.76	— .21	2 4.06	295 0 54.81		16 20 11.91	— 26 5 25.94	1.26	— 11.55					
.03	16.53	—14 28.40	17.49	340 15 16.33	39.753									
.03	16.53	+17 10.08	— 16.97	340 46 55.28		3 37 13.51	+ 19 24 45.05							
— .36	— 16.46					12 26 29.51	— 22 34	+ 1.30						

Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
	m. s.	m. s.	′ ″
Sun . .		1 6.97	15 50.35
Sun . .		1 7.36	15 49.47

1, 25 to 38, 44. Unsteady.
5 to 15. Observed for Dec. at 44*m.* 9*s.*, 50*m.* 58*s.*, 54*m.* 28*s.*, 58*m.* 3*s.*, 5*m.* 10*s.*, 7*m.* 34*s.*, 9*m.* 9*s.*, 12*m.* 2*s.*, 15*m.* 25*s.*, 19*m.* 0*s.*
15, 16. Distended.
17. Blurred.
20, 24. Faint. 20. Seen through thin cloud. 24. Observed for Dec. at 1*m.* 40*s.*
21. Observed for Dec. at 51*m.* 45*s.*
26 to 38. Unsteady. Observed for Dec. at 43*m.* 46*s.*, 47*m.* 37*s.*, 50*m.* 49*s.*, 54*m.* 21*s.*, 58*m.* 23*s.*, 1*m.* 32*s.*, 4*m.* 45*s.*, 8*m.* 6*s.*, 11*m.* 50*s.*, 15*m.* 5*s*, 18*m.* 42*s.*, 22*m.* 23*s.*, 25*m.* 46*s.*
39, 40. Observed with full aperture by mistake.

DATE.	No. for ref	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D	Mean.	Mic.	Barometer.	THER'S At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″		Wire Revs.	In.	°	°
May 17	1	α Cassiopeiæ, S. P.	13.0	53.4	34.0	14.9	55.2	36.1	16.0	12 32 14.66									
	2								58.0		52 35 65.7	59.0	62.5	63.4	62.65	IV. 37.568	30.072	64.7	57.7
	3															37.645			
	4							58.5								37.715			
	5															37.766			
	6						56.0									37.837			57.0
	7															37.867			
	† 8	Polaris, S. P.				59.0				13 4 55.21						37.840			
	9															37.817			
	10				53.5											37.804	30.066	63.9	57.0
	11															37.749			
	12			47.0												37.674			
	13															37.609			
	†14		54.5													37.510	30.062	63.1	56.7
	15	η Ursæ Majoris	1.6	19.6	35.9	52.7	10.1	27.3	44.2	13 41 52.97	11 8 61.1	58.7	62.0	63.2	61.25	41.957	30.058		55.7
	†16	η Bootis	13.0	24.4	36.6	47.6	59.4	11.2	22.5	13 47 47.73	340 15 13.7	14.7	15.8	17.4	15.40	41.208	30.056	62.0	55.4
	17	α Bootis	29.8	41.7	53.6	4.6	16.3	27.9	39.8	14 9 4.73	341 6 2.0	5.3	6.4	7.5	5.30	37.718	30.050	61.2	54.6
	†18	ε Bootis		17.3	29.2	41.4	54.6	6.7	18.8	14 38 47.90									
	†19	α^2 Libræ	16.6	28.2	39.7	50.6	2.0	13.7	25.0	14 42 50.83									
	20	β Ursæ Minoris	25.4	7.7	49.2	30.7	12.5	54.6	36.6	14 51 30.87	35 50 64.5	57.0	62.7	64.0	62.05	41.617	30.052	61.0	53.7
	21	β Libræ	38.4	50.2	1.0	12.0	23.2	34.4	45.1	15 9 12.04	312 17 59.5	61.8	65.4	63.5	62.55	39.795	30.050	60.5	53.0
	†22	α Coronæ Borealis	59.0	11.5	23.4	35.3	46.5	0.7	12.9	15 28 35.90	348 20 56.9	58.9	62.1	61.9	59.95	38.267	30.044	60.0	52.4
	23	α Serpentis	3[illegible].5	46.4	57.5	8.0	9.7	30.5	41.6	15 37 8.46	327 59 56.9	61.0	62.2	60.2	60.08	41.845	30.044	59.7	51.8
18	24	Venus, 2d and N. L.	22.0	33.2	45.0	56.4	8.2	19.3	31.2	2 59 56.47	339 56 56.2	59.0	60.9	61.5	59.40	40.102	30.210	64.8	68.0
	†25	Venus, S. L.														38.450			
19	†26	α Canis Majoris	11.6	23.4	34.3	45.4	57.4	8.5	20.0	6 38 45.86									
	27	α Leonis	2.7	14.2	25.2	36.3	47.5	58.9	10.4	10 0 36.46	333 47 58.7	58.8	61.3	62.0	60.20	41.339	30.146	67.2	72.1
	28	α Ursæ Majoris	26.3	50.4	14.4	37.3	1.6	25.5	49.6	10 54 37.87	23 38 59.7	50.9	57.6	55.9	56.03	41.602	30.156	67.7	66.9
	29	δ Leonis			9.4	21.4	33.3	45.0	56.7	11 6 33.16	342 29 58.8	62.0	64.2	62.7	61.93	35.567	30.158	67.2	66.2
	30	δ Hydræ et Crateris	31.4	43.0	54.2	5.3	16.7	28.1	39.4	11 12 5.44	307 8 57.8	59.7	65.7	63.4	61.65	40.747	30.158	67.5	66.2
20	†31	Venus, 2d and S. L.	52.2		15.3	26.2	38.1	50.0	1.3	2 55 30.52	339 11 58.7	61.4	65.5	62.9	62.13	40.700	30.110	70.0	76.4
	32	Venus, N. L.									339 11 60.8	62.7	67.0	65.2	63.92	39.205			
21	33	Sun, 1st and N. L.	44.6	56.3	7.6	19.4	31.4	42.7	54.8	3 52 19.54	341 22 38.8	42.2	45.4	46.2	43.15*d*	VI. 41.405			
	34	Sun, 2d and S. L.	59.6	11.3	23.2	34.2	46.7	58.3	10.0	3 54 34.76						II. 37.005	30.082	71.0	80.4
	35	α Aurigæ	0.4	16.6	31.8	47.4	3.5	19.1	35.0	5 5 47.69									
	36	Mercury, 1st and S.L	34.4	46.7	58.3	10.3	22.9	35.3	47.7	5 13 10.81	346 20 60.4	62.4	64.7	63.1	62.65	IV. 39.497	30.062	71.3	82.6
	†37	Mercury, N. L.														39.699			
	38	α Canis Majoris	11.4		34.0	45.4	57.0	8.5	20.2	6 38 49.42	304 36 2.5	4.7	10.9	9.4	6.88	40.657	30.052	71.5	82.4
22	†39		40.5								49 35 62.9	55.9	61.7	64.7	61.30	38.780	29.818	72.7	76.9
	40															38.649			
	41			49.0												38.550			
	42				17.0											38.495			
	†43	Polaris				37.0				1 57 42.70						38.490	29.820	73.2	77.7
	44						40.0									38.484			
	45															38.664			
	†46															38.784	29.818	74.9	78.1
	47	α Arietis	19.9	31.6	43.4	55.2	7.4	19.3	31.2	1 58 55.43									
	†48	Venus, 2d and S. L.	52.8	4.4	15.9	27.0	38.9	50.2	1.3	2 52 27.21	338 30 1.0	2.9	4.8	4.5	3.30	38.929	29.719	76.0	80.9
	49	Venus, N. L.														40.452			
	50	α Persei	58.0	15.4	31.7	48.3	5.4	22.2	..	3 13 40.17									
23	51	Sun, 1st and S. L.	45.4	57.0	9.0	20.4	32.3	44.4	55.9	4 0 20.63	341 44 59.2	62.1	63.2	63.2	61.93	II. 38.805	29.818	78.0	84.2
	52	Sun, 2d and N. L.		12.7	24.0	36.0	47.9	59.4	11.5	4 2 41.92						VI. 43.287			

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
May 17, 14	*f* 16.453	*l* .006	+ .026	+ .415	− .196			
19, 11	16.302	.016						
21, 6	16.088	.012						
23, 4	15.298	.007						

1 rev. = 34.″515

51, 52. Micrometer wires recorded, III, V.

No. for ref.	COR. IN R.A. Inst.	COR. IN R.A. Clock.	COR. IN DECL. Inst	COR. IN DECL. Object.	Corrected Readings.	Mic. Zero.	OBSERVED. Right Ascen.	OBSERVED. Declination.	REDUCTION TO 1850.0. R. A.	REDUCTION TO 1850.0. DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	— .23	— 16.46					12 31 57.97	+ 55 42	+ 3.23			May	19,	15 5 h	
2			— 1 5.86	+ 1 15.08	52 36 11.87	39.753					1.4	2.5	3.0	2.7	2 40
3			1 5.91	1 15.08	11.87						0.5	2.6	3.9	2.8	2.45
4			1 5.87	1 15.08	11.82										
5			1 6.26	1 15.08	11.86						0.95	2.55	3.45	2.75	2.43
6			1 5.44	1 15.08	11.47							Mic.	39.657	—8	rdgs.
7			1 4.97	1 15.08	12.29										
8	— 8.34	16.46	1 6.00	1 15.06	12.76		13 4 30.41	88 30 9.14	29.26	+ 31.19					
9			1 6.44	1 15.04	11.69										
10			1 6.06	1 15.02	11.23							May	21,	4. 5 h	
11			1 6.49	1 15.01	11.60						59.2	62.4	63.0	61.5	61.53
12			1 6.99	1 15.00	11.16						60.0	62.7	63.5	62.5	62.17
13			1 7.01	1 14.99	10.65						60.1	62.9	63.8	60.4	61.80
14		16.46	— 1 7.26	1 14.98	10.62										
15	+ .22	16.45	+ 1 16.07	+ 11.39	11 10 28.71		13 41 36.74	50 4 7.96	0.75	— 23.54	59.73	62.67	63.436	61.47	61.83
16	— .04	16.45	+ 50.22	— 20.70	340 15 44.92		13 47 31.24	19 9 24.17	1.21	17.40		Mic.	39.636	—10	rdgs.
17	.03	16.45	— 1 10.24	— 19.81	341 4 35.25		14 8 48.25	19 58 14.50	1.05	18.02					
18	6.17	16.45					14 38 25.28	+ 27 43	0.85						
19	— .31	16.45					14 42 34.07	— 15 25	+ 1.13						
20	+ .81	16.45	+ 1 4.34	+ 41.84	35 52 48.23		14 51 15.23	+ 74 46 27.48	— 3.50	21.72		May	23,	4. 5 h	
21	— .24	16.45	+ .15	— 1 03.64	312 16 59.06		15 8 55.34	— 8 49 21.69	+ 1.12	12.02	58.4	61.9	62.1	59.3	60.42
22	+ .03	16.44	— 51.29	11.98	348 19 56.68		15 28 19.49	+ 27 13 35.93	0.66	13.75	58.9	61.4	61.6	60.3	60.55
23	— .12	16.44	+ 1 12.21	36.27	328 0 36.02		15 36 51.90	6 54 15.27	0.99	12.02	58.9	61.4	61.3	59.8	60.35
24	.04	16.43	+ 11.87	10.79	339 57 0.48	39.758									
25		16.43	— 45.15	11.03	339 56 3.22		2 58 38.01	+ 18 50 11.10			58.73	61.57	61.67	59.80	60.44
26	.05	16.38					6 38 29.37	— 16 30	3.10			Mic.	39.721	10	rdgs.
27	— .08	16.32	+ 56.05	— 27.56	333 48 28.69	39.715	10 0 20.06	12 42 7.94	2.61	9.87					
28	+ .40	16.30	+ 1 5.13	+ 24.81	23 40 25.97		10 54 21.97	62 34 5.22	3.38	27.85					
29	— 11.76	16.30	— 2 23.17	— 17.92	342 27 20.84		11 6 5.10	+ 21 21 0.09	2.32	16.23					
30	.28	16.30	+ 35.62	1 14.66	307 8 22.61		11 11 48.86	— 13 57 58.14	1.77	— 4.52					
31	3.85	16.12	— 16.94	11.56	339 11 33.62	39.689	2 55 8.60	+ 18 5 39.96							
32		16.12	+ 34.89	11.01	339 12 27.80										
33	.03	16.11	+15 30.65	15.60	341 37 58.20		3 53 11.01								
34	— .03	16.11	—16 6.34	16.13	341 6 20.68										
35	+ .17	16.10					5 5 31.76	45 50	5.12						
36	.00	16.10	— 6.34	11.46	346 20 44.85		5 12 54.93	+ 25 14 27.46							
37		16.10	+ 0.34	11.42	346 20 51.57										
38	— 4.09	16.08	+ 33.42	— 1 19.21	304 35 21.07		6 38 29.25	— 16 30 59.68	3.13	+ 12.74					
39			— 40.73	+ 1 4.41	49 36 24.98										
40			41.63	4.40	24.07										
41			41.76	4.38	23.92										
42			41.87	4.35	23.81										
43	+ 7 7.70	15.31	41.38	4.31	24.23	39.734	1 4 35.09	+ 88 30 3.23	25.42	+ 32.19					
44			42.12	4.30	23.48										
45			42.45	4.27	23.45										
46			41.63	+ 1 4.26	23.93										
47	— .02	15.31					1 58 40.10	22 45	3.53						
48	— .05	15.31	— 27.85	— 11.88											
49		15.31	+ 24.78	11.26			2 52 9.96	17 23 29.45							
50	+ 8.62	15.30					3 13 33.49	49 19	+ 4.74						
51	— .02	15.30	—15 5.76	15.48	341 29 40.69										
52	— 5.88	— 15.30	+16 34.41	— 14.99	342 1 21.35		4 1 13.02	+ 20 39 10.27							

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vertical.
		m. s.	m. s.	′ ″
24	Venus -	— 1.99		28.63
31	Venus -	— 1.95		27.09
33	Sun - -		1 7.61	15 48.76
36	Mercury -	+ .22		3.36
48	Venus -	— 1.89		26.63
51	Sun - -		1 7.72	15 50.33

2 to 14. Faint but steady. Observed for dec. at 51*m.* 6*s.*, 53*m.* 15*s.*, 55*m.* 28*s.*, 58*m.* 5*s.*, 1*m.* 9*s.*, 3*m.* 24*s.*, 5*m.* 3*s.*, 7*m.* 31*s.*, 9*m.* 40*s.*, 12*m.* 2*s.*, 14*m.* 27*s.*, 16*m.* 31*s.*, 18*m.* 53*s.*

16, 19. Very faint.

18, 22, 26, 37, 48. Unsteady.

25, 31, 48. Applied for defective illumination of S. L. — 0.″22, — 0.″53, — 0.″61 respectively.

37. Applied + 0.″04 for def. illumination of N. L.

39 to 46. Observed for dec. at 51*m.* 20*s.*, 54*m.* 15*s.*, 57*m.* 55*s.*, 1*m.* 14*s.*, 4*m.* 49*s.*, 8*m.* 4*s.*, 16*m.* 36*s.*, 19*m.* 6*s.*

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THERM. At	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ″ ″	″	″	″	″	Wire	Revs	In.	°	°
May 23	1	α Aurigæ	59.8	15.9	31.3	46.9	2.7	18.5	44.2	5 5 47.04	6 57 5.7	1.4	5.7	6.7	4.88	IV	38.525	29.776	78.8	84.4
	2	Mercury, 1st & S.L.	56.3	8.4	20.4	32.5	44.7	57.3	9.7	5 27 32.76	346 36 0.0	1.0	1.8	3.3	1.53		41.267	29.770	79.0	85.1
	†3	Mercury, N. L. .	--	--	--	--	--	--	--								41.447			
	†4	α Canis Majoris . .	10.4	22.0	33.2	45.4	56.3	7.5	19.0	6 38 44.70	304 35 56.2	56.7	63.0	62.7	59.65		40.755	29.742	78.8	85.7
	5	β Corvi	9.0	21.6	33.4	45.2	57.0	9.0	21.0	12 26 45.17										
	6	α Bootis	28.4	40.3	51.7	3.4	15.2	26.3	38.4	14 9 3.39	341 6 2.2	4.5	6.2	7.7	5.15		37.754	29.842	75.0	69.7
	7	α Serpentis . . .	34.3	45.5	56.5	7.4	18.5	29.5	40.3	15 37 7.43	327 59 54.3	56.4	58.7	57.5	56.73		41.973	29.854	74.5	66.4
	8	ξ Ursæ Minoris . .	--	--	58.5	51.0	45.2	40.0	33.2	15 50 45.58	39 20 54.2	47.0	51.0	52.2	51.10		40.024	29.854	74.5	66.0
	9	Scorpii, (5333) .	41.4	53.4	5.4	16.2	28.5	40.4	51.3	15 58 16.66										
	10	α Scorpii	--	--	14.0	27.3	39.5	51.6	4.4	16 20 39.36										
	11	20 Ophiuchi . . .	13.2	24.4	35.5	46.4	57.4	9.3	20.4	16 41 46.66	310 36 1.7	1.3	6.0	6.4	3.85		41.080	29.856	72.0	62.2
31	12	β Corvi	1.4	13.3	25.4	37.0	49.0	1.1	12.9	12 26 37.16										
	13	γ Virginis . . .	36.5	47.7	58.4	9.5	20.4	31.5	42.5	12 34 9.50										
	14	Polaris, S. P. . .	57.5	53.0	58.0	--	0.0	58.0	59.5	13 4 57.67										
	15	Moon, 1st L. . .	31.4	42.6	53.8	5.0	16.4	27.7	39.0	13 5 5.13										
	16	α Virginis . . .	49.7	1.0	12.3	23.7	34.5	46.3	57.4	13 17 23.56										
	†17	α Bootis	20.5	32.0	43.2	55.2	7.0	18.7	30.4	14 8 55.29										
	18	α Coronæ Borealis .	49.4	2.3	14.4	26.3	39.0	51.4	3.6	15 28 26.63										
	19	α Serpentis . . .	26.0	37.3	48.2	59.1	10.3	21.4	32.4	15 36 59.24										
	20	ξ Ursæ Minoris . .	--	--	--	43.2	37.7	32.0	25.8	15 51 4.68										
	†21	δ Ophiuchi . . .	2.4	13.9	24.4	35.4	46.6	57.5	8.4	16 6 35.51										
June 4	22	Moon, 1st L. . .	17.0	29.2	40.9	52.4	4.7	16.0	28.0	16 19 52.60										
	23	20 Ophiuchi . . .	--	10.4	21.2	32.5	43.9	55.0	6.1	16 41 38.18										
5	24	α Ursæ Majoris . .	--	--	59.2	33.0	47.0	10.5	34.3	10 54 46.80										
	25	δ Leonis	30.6	42.4	54.4	6.2	18.0	29.5	41.5	11 6 6.09										
	26	δ Hydræ & Crateris .	15.8	27.3	38.4	49.7	1.1	12.3	24.0	11 11 49.80										
	27	β Leonis	49.2	0.5	12.0	23.4	34.7	46.0	57.5	11 41 23.33										
	28	γ Ursæ Majoris . .	56.4	16.0	34.5	53.5	12.8	31.1	50.4	11 45 53.53										
	29	β Corvi	54.9	6.9	18.8	30.5	42.4	54.5	6.4	12 26 30.63										
	30	Polaris, S. P. . .	38.5	32.0	38.0	38.0	35.5	43.0	35.5	13 4 37.21										
11	31	β Corvi	--	--	--	28.7	40.4	52.1	4.0	12 26 46.30										
	32	Polaris, S. P. . .	40.0	39.0	41.0	40.0	40.0	42.0	40.0	13 4 40.29										
	33	α Bootis	12.4	23.4	35.3	47.0	59.0	10.1	22.2	14 8 47.06										
	34	ε Bootis	47.0	59.7	12.1	24.0	36.7	49.2	1.4	14 38 24.30										
	35	α^2 Libræ	59.0	10.2	2.9	--	44.7	56.0	7.5	14 42 33.22										
	36	β Ursæ Minoris . .	9.0	50.5	32.5	14.3	56.5	37.6	19.6	14 51 14.29										
	37	β Libræ	21.0	32.0	43.5	54.4	5.7	16.6	27.7	15 8 54.41										
14	38	α Persei	--	58.3	15.1	31.3	48.5	5.4	22.2	3 13 40.13										
	39	α Tauri	38.4	50.0	1.4	12.8	24.4	35.4	47.0	4 27 12.79										
17	40	α Persei	39.4	56.3	13.1	30.0	47.0	3.5	20.4	3 13 29.76										
	41	α Tauri	36.6	48.2	59.5	11.1	22.5	33.9	45.3	4 27 11.01										
	42	α Aurigæ	40.5	56.1	12.1	27.5	43.4	59.7	15.0	5 5 27.76										
18	43	Sun, 1st L. . .	--	25.7	37.2	49.4	1.0	13.7	25.7	5 46 55.45										
	44	Sun, 2d L. . .	--	43.2	55.2	7.4	19.3	30.9	43.5	5 49 13.25										
	45	α Canis Majoris . .	--	--	--	--	36.0	47.4	59.0	6 38 47.47										
	46	β Corvi	49.4	1.0	13.1	25.0	36.9	48.4	0.5	12 26 24.90										
	†47		42.5	40.0							52 35 58.5	56.8	52.1	74.2	60.52		37.923			
	48	Polaris, S. P. . .			41.5	43.4				13 4 43.34							37.925	30.346	77.6	76.5
	49						43.5										37.940			
	†50							46.0	46.5								37.940			
	51	α Bootis	8.4	20.1	32.0	43.5	55.5	6.8	18.7	14 8 43.57	341 5 54.8	62.4	52.8	77.4	61.85		37.658			
	52	ε Bootis	--	55.9	8.4	20.4	33.3	45.5	58.0	14 38 26.92	348 47 59.8	65.2	54.4	80.0	65.05		41.867			

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s	s.	″	h.	revs.
May 23, 14	f 15.287	l .007	+ .026	+ .415	— .196			
31, 14	7.269	.045						
June 4, 17	0.777	.010	— .018	+ .139	— .355			
5, 12	f 0.817	.000						
11, 14	s 1.782	.018	— .550	+ .118	— .314			
14, 4	3.404	.022						
17, 5	5.244	.021						
18, 15	5.256	.004						

1 rev. = 35″.515.

May 31. Set up reversing apparatus and observed with circle E and circle W for errors of collimation and of level; after which Professor Keith removed all the micrometer and transit wires and inserted a new set in place of them.

June 4 The fixed wire and mic. wire IV are slack; transit wires all right.

June 11. Both systems of wires being unsatisfactory, were removed and others put in their stead, viz: seven micrometer wires, seven transit wires, and one fixed, horizontal wire.

June 18. Clamp screw broken. Observations of this evening made carefully without the clamp

No. for ref.	COR. IN R.A. Inst.	COR. IN R.A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. zero	OBSERVED. R. A.	OBSERVED. DEC.	REDUCTION TO 1850.0. R. A.	REDUCTION TO 1850.0. DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	″	h. m. s.	° ′ ″	s.	″					
1	+ .16	− 15.29	− 41.72	+ 5.23	6 56 28.38	39.734	5 5 31.91	+ 45 50 7.63	+ 5.09	+ 11.75		June	18.	17h. 7	
2	+ .01	15.29	+ 52.91	− 10.98	346 36 43.46						58″2	58″8	48″4	70″4	58″95
3		15.29	59.12	10.94	346 36 49.71		5 27 17.71	+ 25 30 28.84			57.7	58.7	49 0	71.4	59.20
4	− .30	15.28	+ 35.25	1 17.88	304 35 17.02		6 38 29.12	− 16 31 3.73	3.13	+ 12.49	57.4	58.8	50.0	72.7	59.72
5	.36	15.30					12 26 29.51	− 22 34	1.36						
6	.03	15.29	− 1 8.84	19.09	341 4 37.22	39.749	14 8 48.07	+ 19 58 16.47	1.07	− 19.10	57.77	58.77	49.13	71.50	59 29
7	.13	15.28	+ 1 16.78	− 35.00	328 0 38.51		15 37 52.02	6 54 17.76	0.95	12.81					
8	52.67	15.27	9.51	+ 45.98	39 21 46.59		15 49 37.64	+ 78 15 25.84	− 6.75	17.44		Mic.	39.495	−10	rdgs.
9	.32	15.27					15 57 1.07	− 19 23	+ 1.11						
10	12.57	15.24					16 20 11.55	26 55	1.16	11.16					
11	.25	15.24	+ 45.96	− 1 05.83	310 3[illegible]43.98		16 41 31.17	10 30 36.70	1.12	− 10.36					
12	.26	7.34					12 26 29.46	22 34	1.45						
13	.17	7.34					12 34 1.99	− 0 37	1.13						
14	7.51	7.31					13 4 42.85	+ 88 30	20.03						
15	.41	7.31					13 5 59.66								
16	.25	7.30					13 17 16.01	− 10 22	1.38						
17	− .03	7.26					14 8 48.00	+ 19 59	1.10						
18	+ .02	7.20					15 28 19.45	27 14	0.63						
19	− .12	7.20					15 36 51.92	6 54	0.92						
20	1 19.55	7.19					15 49 37.94	+ 78 16	− 6.60						
21	.20	7.18					16 6 28.13	− 3 18	+ 0.96						
22	.42	0.78					16 20 54.89	16 26							
23	6.00	-- --					16 41 31	− 10 31	0.99						
24	24.31	0.82					10 54 21.67	+ 62 34	4.00						
25	.34	0.82					11 6 4.93	21 21	2.52						
26	.42	0.82					11 11 48.56	− 13 58	1.97						
27	.35	0.82					11 41 22.16	+ 15 25	2.17						
28	.44	0.82					11 45 52.27	+ 54 32	2.75						
29	− .46	0.82					12 26 29.35	− 22 34	1.50						
30	+ 8.23	− 0.82					13 4 44.62	+ 88 30	16.08						
31	− 18.74	+ 1.76					12 26 29.31	− 22 34	1.55						
32	+ 6.94	1.76					13 4 48.59	+ 88 30	11.74						
33	− .84	1.78					14 8 48.00	19 58	1.26						
34	.84	1.79					14 38 25.25	+ 27 43	0.93						
35	.91	1.79					14 42 34.10	− 15 25	+ 1.12						
36	1.32	1.80					14 51 14.77	+ 74 46	− 2.60						
37	.89	1 80					15 8 55.32	− 8 49	+ 1.05						
38	9.31	3.39					3 13 34.21	+ 49 19	4.14						
39	.84	3.41					4 27 15.36	16 11	3.65						
40	.89	5.21					3 13 34.28	49 19	4.05						
41	.84	5.23					4 27 15.40	16 12	3.62						
42	.88	5.25					5 5 32.13	+ 45 50	4.79						
43	6.82	5.26					5 48 2.79								
44	6.82	5.26													
45	23.77	5.28					6 38 28.98	− 16 31	3.17						
46	− .94	5.25					12 26 29.21	− 22 34	1.66						
47			− 52.94	+ 1 12.95	52 36 20.53										
48	+ 6.94	5.25	53.49	12.95	19.98	39.475	13 4 55.53	+ 88 30 0.32	6.02	+ 35.03					
49			52.96	12.95	20.51										
50			52.75	12.95	20.72										
51	− .84	5.25	− 1 2.70	− 19.35	341 4 39.80		14 8 47.98	19 58 19.05	1.24	− 22.95					
52	− 7.01	+ 5.23	+ 1 22.57	− 11.16	348 49 16.46		14 38 25.13	+ 27 42 55.71	+ 1.01	− 23.16					

No.	Object.	COR. IN R A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vertical.
		m. s	m. s.	′ ″
2	Mercury -	+ 0.23		3.12
15	Moon - -	+ 1 2.25		
22	Moon - -	+ 1 3.49		
43	Sun - -	- - - - -	1 8.90	

3. + 0″.04 applied for def. illum'n of N. L.
4. Large; twinkling.
17. Observed with full aperture; too bright.
47 to 50. Observed for dec., with circle unclamped, at 1m. 19s., 3m. 42s., 5m 30s 6m 59s.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THERM. At.	Ex.
1849.			s.	s.	s.	s.	s	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
June 18	1	μ^1 Sagittarii - - - -	--	18.7	30.4	42.0	54.2	5.6	17.3	18 4 48.03										
21	2	Sun, 1st L. - - -	--	53.7	6.0	17.7	29.9	41.8	53.8	5 59 23.82										
	3	Sun, 2d L. - - -	59.7	11.8	23.9	35.7	47.7	59.5	11.4	6 1 35.67										
	4	α Canis Minoris - -	45.4	56.5	7.4	18.4	29.5	40.4	51.3	7 31 18.41										
	5	α Persei - - - - -	--	--	12.3	29.0	46.1	2.7	19.4	3 13 45.90										
	6	α Tauri - - - - -	35.9	47.3	58.5	10.0	21.5	32.9	44.2	4 27 10.04										
	7	α Aurigæ - - - -	39.3	55.1	11.0	26.8	42.0	58.2	13.9	5 5 26.61										
22	† 8	Sun, 1st L. - - -	50.9	3.0	14.9	27.3	39.2	51.3	3.2	6 3 27.11										
	9	Sun, 2d L. - - -	8.9	21.0	33.0	45.0	57.0	8.9	20.8	6 5 44.94										
	10	α Canis Majoris - -	49.3	0.4	12.0	23.4	34.9	46.4	57.8	6 38 23.46										
	11	α Canis Minoris - -	--	--	--	--	29.0	39.7	50.9	7 31 39.87										
	12	α Leonis - - - -	40.5	51.8	3.0	14.0	25.3	36.7	47.9	10 0 14.17										
	†13	ε Bootis - - - -	--	--	--	19.2	31.7	44.2	55.0	14 38 37.53										
	†14	α^2 Libræ - - - - -	54.0	5.7	17.1	28.3	40.0	51.0	1.0	14 42 28.16										
	15	μ^1 Sagittarii - - -	5.7	17.4	29.1	40.8	52.7	4.5	16.1	18 4 40.90										
30	16	η Bootis - - - - -	48.1	59.9	11.4	23.0	34.5	46.0	57.4	13 47 22.90										
	†17	α Bootis - - - - -	4.9	16.5	28.0	39.8	51.4	13.2	--	14 8 33.97										
	18	ε Bootis - - - - -	39.8	52.3	4.6	17.0	29.3	41.8	--	14 38 10.80										
	19	α^2 Libræ - - - - -	51.7	3.3	14.4	25.9	37.4	48.6	--	14 42 20 22										
	20	δ Libræ - - - - -	15.4	26.0	36.4	48.5	59.6	10.5	--	14 52 42.73										
	21	β Libræ - - - - -	13.8	25.0	35.0	47.2	58.4	9.4	--	15 8 41.47										
	†22	Moon, 1st L. - -	37.2	49.0	9.5	12.4	23.5	35.0	--	15 14 6.10										
July 2	23	α Coronæ Borealis -	33.5	45.7	58.0	10.7	23.0	35.0	47.4	15 28 10.47										
	24	α Serpentis - - - -	9.9	21.0	32.0	43.0	54.0	5.2	16.0	15 36 43.01										
	25	ζ Ursæ Minoris - -	46.4	40.0	34.7	28.8	22.7	16.0	10.2	15 49 28.40										
	26	υ Scorpii - - - -	--	43.8	55.4	7.0	18.7	30.2	41.6	16 3 12.78										
	27	δ Ophiuchi - - - -	--	57.6	8.4	19.7	30.4	41.5	52.4	16 6 25.00										
	28	ψ Ophiuchi - - - -	--	46.4	58.4	10.0	21.5	33.2	44.8	16 15 15.72										
	29	α Scorpii - - - -	26.4	38.8	51.0	3.2	15.3	27.7	39.8	16 20 3.17										
	30	Moon, 1st L - -	12.4	24.4	36.2	47.8	59.4	11.5	23.4	16 53 47.87										
	31	η Ophiuchi - - - -	2.7	14.4	25.4	36.4	48.4	59.5	11.0	17 1 36.83										
	32	α Herculis - - - -	5.0	16.4	28.0	39.2	50.4	1.6	13.2	17 7 39.11										
	33	θ Ophiuchi - - - -	2.0	14.0	26.4	37.9	50.4	2.4	14.5	17 12 38.23										
11	34	α Canis Majoris - -	39.0	50.3	1.3	13.2	24.5	36.0	47.4	6 38 13.10										
13	35	α Canis Majoris - -	38.7	50.0	1.0	13.0	24.3	35.5	47.1	6 38 12.80										
15	36	α Aurigæ - - - -	29.3	44.9	0.4	16.3	32 2	47.9	3.2	5 5 16.31										
	37	β Orionis - - - -	--	38.0	49.2	0.3	11.4	22.4	33.4	5 7 5.78										
	38	α Orionis - - - -	10.2	21.3	32.0	43.3	54.5	5.3	16.3	5 46 43.27										
	39	α Canis Majoris - -	38.2	49.7	1.1	12.4	24.0	35.4	46.7	6 38 12.50										
16	40	Polaris, S. P. - -	45.0	43.5	44.0	46.7	47.0	50.0	50.5	13 4 46.74										
	41	η Ursæ Majoris - -	27.6	44.6	2.0	19.0	36.0	53.0	10.2	13 41 18.91										
	42	α Bootis - - - - -	55.7	7.5	19.3	30.9	42.5	54.1	5.8	14 8 30.83										
	43	α Aurigæ - - - -	29.0	44.5	0.3	16.0	31.9	47.4	3.1	5 5 16.03										
	44	β Orionis - - - -	26.4	37.8	49.0	0.0	11.3	22.2	33.1	5 7 59.97										
	45	α Orionis - - - -	9.7	21.0	32.0	43.0	54.0	5.1	16.1	5 46 42.99										
17	†46	β^1 Scorpii - - - -	50.2	1.4	13.6	25.3	36.8	48.6	59.5	15 56 25.06										
	†47	δ Ophiuchi - - - -	38.3	49.3	0.4	11.5	22.4	33.1	44.1	16 6 11.30										
	48	α Herculis - - - -	--	8.4	19.7	31.0	42.5	53.6	5.2	17 7 36.73										
	49	α Canis Majoris - -	37.8	49.3	0.9	12.0	23.5	35.0	46.2	6 38 12.10										
18	50	α Virginis - - - -	--	36.4	47.5	58.3	9.9	21.0	32.1	13 17 4.20										
	51	Polaris, S. P. - -	46.0	44.5	47.0	--	49.5	51.0	51.0	13 4 48.17										
	52	η Ursæ Majoris - -	--	44.4	1.4	18.4	35.4	52.6	9.9	13 41 27.02										

Date.	Clock.	Hourly Rate.	VALUE OF m.	n.	c.	Error of Runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
June 21, 4	s 6.339	l .015	— .550	+ .118	— .314			
22, 13	6.705	.015						
30, 14	8.943	.015						
July 2, 16	9.760	.016						
11, 7	16.736	.016	— .132	— .020	— .314			
13, 7	17.053	.007						
15, 6	17.221	.009						
16, 14	17.316	.010						
5	17.456	.013						
17, 16	17.436	.009						
		.009						

1 rev. = 34.″515.

8. Wires II to VII recorded 10s. greater.
13, 14. Transit wire VII believed to be slack.
17 to 22. Recorded transits of wire VII rejected; wire bent inwards.
July 15, 7h. Set up reversing apparatus. Observed for errors of level and collimation

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED. R. A.	OBSERVED. DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s	s.	′ ″	′ ″	° ′ ″		h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	− 6.81	+ 5.27					18 4 46.49	− 21 5	+ 0.99						
2	6.83	5.80					6 0 31.71								
3	.84	5.80													
4	.85	5.82					7 31 23.38	+ 5 36	3.40						
5	17.71	6.32					3 13 34.51	49 19	3.91						
6	.84	6.35					4 27 15.55	16 12	3.51						
7	.88	6.35					5 5 32.08	+ 45 50	4.69						
8	.84	6.37					6 4 41.55								
9	.84	6.37													
10	.91	6.38					6 38 28.93	− 16 31	3.14						
11	22.87	6.39					7 31 23.39	+ 5 36	3.39						
12	.85	6.67					10 0 19.99	12 42	2.96						
13	19.41	6.73					14 38 24.85	+ 27 43	1.03						
14	.91	6.73					14 42 33.98	− 15 25	1.17						
15	.93	6.78					18 4 46.75	− 21 5	0.92						
16	− .84	8.94					13 47 31.00	+ 19 9	1.57						
17	+ 4.98	8.94					14 8 47.89	19 58	1.37						
18	5.34	8.95					14 38 25.09	+ 27 43	1.13						
19	4.77	8.95					14 42 33.94	− 15 25	1.25						
20	4.64	8.96					14 52 56.33	7 55	1.21						
21	4.65	8.96					15 8 55.08	8 49	1.15						
22	+ 4.81	8.96					15 15 22.64	− 13 0							
23	− .84	9.75					15 28 19.38	+ 27 14	0.78						
24	.85	9.75					15 36 51.91	6 54	+ 0.97						
25	1.52	9.76					15 49 36.64	+ 78 16	− 4.83						
26	6.73	9.76					16 3 15.81	− 19 4	+ 1.00						
27	6.37	9.76					16 6 28.39	3 18	0.92						
28	6.76	9.76					16 15 18.72	19 41	0.97						
29	.96	9.77					16 20 11.98	26 5	0.97						
30	.94	9.77					16 55 0.63	17 37							
31	.91	9.78					17 1 45.70	− 15 32	0.85						
32	.84	9.78					17 7 48.05	+ 14 34	0.49						
33	.95	9.78					17 12 47.06	− 24 51	0.90						
34	.46							16 31	2.97						
35	.46							− 16 31	2.95						
36	.61	17.21					5 5 32.91	+ 45 50	4.04						
37	6.00	17.21					5 7 16.99	− 8 23	2.85						
38	.45	17.22					5 47 0.04	+ 7 22	3.16						
39	− .46	17.23					6 38 29.27	− 16 31	+ 2.92						
40	+ 12.42	17.30					13 5 16.46	+ 88 30	− 16.80						
41	− .64	17.31					13 41 35.58	50 4	+ 1.95						
42	.46	17.32					14 8 47.69	19 58	1.58						
43	.61	17.46					5 5 32.88	+ 45 50	4.01						
44	.45	17.46					5 7 16.98	− 8 23	2.82						
45	.45	17.47					5 47 0.01	+ 7 23	3.13						
46	.46	17.44					15 56 42.04	− 19 23	1.11						
47	.45	17.44					16 6 28.29	− 3 18	1.00						
48	6.11	17.45					17 7 48.07	+ 14 34	0.53						
49	.45	17.56					6 38 29.2[illegible]	− 16 31	2.89						
50	− 6.03	17.62					13 17 15.79	− 10 22	1.85						
51	+ 12.43	17.62					13 5 18.22	+ 88 30	− 18.48						
52	− 9.19	17.63					13 41 35.46	+ 50 4	+ 1.99						

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
2	Sun - -		1 8.92	
8	Sun - -		1 8.91	
22	Moon -	+ 1 2.77		
20	Moon -	+ 1 3.90		

46, 47. Observed by Professor Coffin.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THERM. At.	Ex.
1849.			s.	s.	s	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Jul. 18	1	α Bootis	55.4	7.2	18.9	30.5	43.2	53.8	5.5	14 8 30.50										
	2	α Orionis	9.4	20.3	31.5	42.5	53.7	4.7	15.4	5 46 42.50										
	†3	α Canis Majoris	37.7	49.0	0.7	11.9	23.4	34.5	46.1	6 38 11.90	304 38 52.0	54.9	60.4	61.7	57.25	IV.	35.907	30.225	79.4	84.(
19	†4	Sun 1st & N. L.	27.0	39.3	51.3	2.8	14.7	26.7	38.4	7 54 2.89	341 56 60.5	66.7	65.8	69.4	65.60	VI.	37.970	30.249	81.8	86.(
	†5	Sun 2d & S. L.	42.8	54.5	6.2	18.0	30.0	41.7	53.4	7 56 18.09						II.	33.850			88.(
	6	α Leonis	28.5	39.7	50.9	2.2	13.3	24.8	35.9	10 0 2.19										
22	7	α Aurigæ	--	--	--	--	28.5	44.1	60.0	5 5 44.20										
	8	β Orionis	--	34.4	45.5	56.4	8.0	18.7	29.6	5 6 62.10										
	9	β Tauri	47.5	0.2	12.6	24.5	37.4	50.0	2.4	5 16 24.94										
	10	δ Orionis	24.4	35.6	46.4	57.4	8.4	19.3	30.0	5 23 57.36										
	11	ε Orionis	40.0	50.9	2.0	12.6	23.7	34.6	45.5	5 28 12.76										
	12	ι Orionis	6.2	17.3	28.4	39.5	50.6	1.5	12.7	5 46 39.46										
	†13	α Canis Majoris	34.7	46.2	57.4	9.2	20.3	31.8	43.3	6 38 8.99										
	14	Mercury 2d L.	21.0	33.0	44.9	56.7	8.5	20.4	32.0	6 45 56.64										
	15	α Canis Minoris	--	--	--	3.2	14.2	25.0	36.0	7 31 19.60										
24	†16	Polaris, S. P.							--		52 35 59.6	53.(	58.4	62.6	58.56	IV.	37.823	30.244	81.2	80.(
	17																37.956			
	18							55.5									38.072			
	19						--										38.084			
	20					52.5				13 10 7.75							38.125			80.
	21																38.095			
	22				--												38.075			
	23			51.0													38.068			
	24		52.0														37.796			
	25	η Ursæ Majoris	23.3	40.3	57.4	14.5	31.7	48.6	6.0	13 41 14.54	11 11 58.0	56.8	62.0	65.2	60.50		37.025	30.244	81.0	80.
	26	β Ursæ Minoris	--	--	10.0	51.5	33.4	15.0	56.7	14 51 33.32										
	27	α Coronæ Borealis	21.4	33.7	46.2	58.3	10.7	23.1	35.2	15 27 58.37	348 20 57.9	63.5	65.5	66.5	63.35		38.354	30.256	79.5	75.
	28	α Serpentis	57.6	8.7	19.8	30.8	41.9	52.9	4.0	15 36 30.81	327 59 52.7	58.4	60.4	62.8	58.58		41.963	30.254	79.3	74.
	29	ζ Ursæ Minoris	32.7	26.8	20.9	14.7	8.5	2.1	56.(	15 49 14.53	39 20 59.5	55.(	60.8	62.7	59.65		40.195	30.252	79.0	74.
	30	δ Ophiuchi	34.4	45.4	56.4	7.3	18.4	29.3	40.3	16 6 7.36	317 47 55.7	60.4	64.2	65.0	61.32		41.685	30.254	78.4	73.
	31	α Scorpii	14.4	26.7	39.0	51.0	3.2	15.7	27.7	16 19 51.10	295 2 49.8	50.7	57.3	60.2	54.50		39.494	30.254	78.4	73.
29	32	ε Orionis	35.7	46.5	57.5	8.6	19.5	30.6	--	5 28 3.07										
	33	α Orionis	2.1	13.2	24.3	35.4	46.4	57.5	--	5 46 29.82										
	34	α Canis Majoris	--	42.0	53.4	4.9	16.2	27.5	--	6 38 4.80										
30	35	Polaris, S. P.	46.0	50.0	52.0	48.0	--	--	--	12 55 19.00										
	36	Polaris, S. P.	8.0	3.5	4.0	--	--	--	--	13 19 5.17										
	°37	ε Ursæ Minoris	9.0	31.0	53.0	14.0	--	--	--	16 59 11.75										
	38	ε Ursæ Minoris	11.0	--	--	--	--	--	--	17 5 11.00										
31	39	α Canis Majoris	28.5	39.7	51.4	2.7	14.2	25.9	37.1	6 38 2.79										
Aug. 1	40	Polaris, S. P.	40.0	42.5	40.5	39.0	--	--	--	12 55 10.50										
	41	Polaris, S. P.	52.0	50.5	50.0	--	-	--	--	13 18 50.83										
6	42	α Canis Majoris	27.0	38.1	50.1	1.5	13.0	24.3	35.8	6 38 1.40										
12	43	ι Canis Majoris	26.5	37.8	49.2	0.7	12.0	23.5	34.9	6 38 0.66										
	44	β Geminorum	57.5	10.3	22.7	35.0	47.7	0.(	12.4	7 35 35.09										
16	45	Polaris, S. P.	--	--	--	0.0	59.0	0.0	59.0	12 54 29.50										
	46	Polaris, S. P.	--	--	--	--	41.0	41.0	39.(	13 19 40.33										
	47	α Ophiuchi	54.1	5.4	16.6	27.9	39.1	50.2	1.5	17 27 27.83										
	48	μ^1 Sagittarii	41.5	53.4	5.3	16.8	28.7	40.4	52.(	18 4 16.87										
	49	δ Ursæ Minoris, (Ref.)	--	--	40.0	41.0	--	--	--	18 19 10.50										
	50	δ Ursæ Minoris	--	--	--	--	49.5	53.0	57.5	18 26 53.33										
	51	α Canis Minoris	21.0	32.0	43.0	54.1	5.0	16.1	27.(	7 30 54.03										
21	52	δ Ursæ Minoris	--	29.0	33.4	37.8	44.0	48.5	--	18 20 38.54										

Date.	Clock.	Hourly rate.	VALUE OF. m.	n.	c.	Error of runs.	Mic. Coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
July 18, 6	s 18.008	l .012	— .132	— .020	— .314			
19, 10	17.870	.033						
22, 6	21.034	.015						
24, 15	21.316	.015						
29, 6	25.400	.024	.168	+ .025	.314			
30, 13			.495	.412	.514			
31, 7	27.397	l .018						
Aug. 6, 7	28.883	l .008	— .168	+ .025	— .314			
12, 7	29.785	.005						
16, [illegible]	[illegible]	.015						
		.018						
		.030						

1 rev. = 34″.515.

4, 5. Mic. recorded 38r.97, 34r.85.

Aug. 12. West end of axis over-counterpoised; at 7h. adjusted the counterpoise screw to let down the friction rollers.

July 30 to Aug. 25. Reversing apparatus in use. Observed transits of circumpolar stars for the better determination of collimation error, reversing after transit of middle wire.

No. for ref.	COR. IN R.A. Inst.	COR. IN R.A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED. R. A.	OBSERVED. DEC.	REDUCTION TO 1t 50.0. R. A.	REDUCTION TO 1t 50.0. DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″					°
1	— 0.46	+ 17.63					14 8 47.67	+ 19 58	+ 1.60			July	18, 6h.		
2	.45	+ 18.01					5 47 0.06	+ 7 22	3.08		61″0	60″4	60″0	58″4	59″95
3	.47	18.02	— 2 9.47	— 1 19.45	304 35 28.33	39.658	6 38 29.45	— 16 30 52.42	2.87	+ 1.17	58.2	60.0	60.2	61.5	59.98
4	.48	18.03	+13 33.05	15.54	342 10 23.11		7 55 28.04	+ 20 48 18.50			58.2	60.0	59.7	61.6	59.87
5	.48	18.03	—17 54.17	— 16.04	341 38 55.39										
6	.45	18.06					10 0 19.80	12 42	3.10		59.13	60.15	59.97	60.50	59.93
7	32.06	21.02					5 5 33.16	+ 45 50	3.81						
8	6.00	21.02					5 7 17.12	— 8 23	2.68			Mic.	39.660	—10	rdgs.
9	.50	21.02					5 16 45.46	+ 28 28	3.28						
10	.45	21.03					5 24 17.94	— 0 25	2.82			July	24,	15.3h	
11	.45	21.03					5 28 33.34	— 1 18	2.82		60.5	62.0	63.4	65.0	62.72
12	.45	21.03					5 47 0.04	+ 7 22	3.00		58.5	63.7	63.8	62.8	62.20
13	.46	21.04					6 38 29.57	— 16 31	2.81		58.5	63.0	62.4	62.8	62.43
14	.48	21.05					6 46 16.95								
15	16.97	21.06					7 31 23.69	+ 5 36	+ 3.16		59.17	62.90	63.20	63.53	62.20
16			51.96	+ 1 12.15	52 36 18.75							Mic.	39.558	—10	rdgs.
17			52.09	12.15	18.62										
18			52.41	12.14	18.29										
19			52.78	12.12	17.90										
20	5 2.43	21.29	51.64	12.12	19.04	39.622	13 5 26.61	88 30 2.45	— 22.77	+ 32.64					
21			52.63	12.14	18.07										
22			52.80	12.14	17.90										
23			52.18	12.16	18.44										
24			53.04	1 12.15	17.67										
25	.64	21.30	1 29.65	+ 10.94	11 10 41.79		13 41 35.20	50 4 21.04	+ 2.13	— 32.06					
26	42.16	21.31					14 51 12.47	74 47	0.24						
27	.50	21.32	— 43.78	— 11.53	348 20 8.04		15 28 19.19	27 13 47.29	1.06	26.11					
28	.45	21.32	+ 1 20.78	— 34.90	328 0 44.46		15 36 51.68	6 54 23.71	1.17	20.07					
29	1.67	21.33	19.76	+ 45.86	39 22 5.27		15 49 34.19	+ 78 15 44.52	— 2.88	31.59					
30	.45	21.33	+ 1 11.19	— 50.71	317 48 21.80		16 6 28.24	— 3 17 58.99	+ 1.07	16.34					
31	— .49	21.34	— 4.44	— 1 59.34	295 0 50.72		16 20 11.95	26 5 30.03	1.12	— 9.28					
32	+ 4.99	25.39					5 28 33.45	— 1 18	2.67						
33	+ 5.04	25.39					5 47 0.25	+ 7 22	2.86						
34	— .52	25.42					6 38 29.70	— 16 31	+ 2.70						
35	+ 9 41.49	25.57					13 5 26.60	+ 88 30	— 27.70						
36	—14 3.60	25.57													
37	+ 2 2.60	25.64					17 1 39.71	+ 82 17	— 8.89						
38	— 3 57.20	25.64													
39	— .49	26.43					6 38	— 16 31	+ 2.65						
40	+ 9 58.88	27.51					13 5 37.46	+ 88 30	— 29.22						
41	—13 47.77	27.51													
42	.49	-- --					6 38	— 16 31	+ 2.54						
43	.49	29 78					6 38 29.85	— 16 31	2.42						
44	— .51	29.79					7 36 4.37	+ 28 23	3.40						
45	+10 39.88	30.13					13 5 40.00	88 30	39.35						
46	—14 29.98	30.13													
47	.49	30.20					17 27 57.54	+ 12 40	0.77						
48	— .51	30.21					18 4 46.57	— 21 5	+ 0.96						
49	+ 1 30.38	30.21					18 21 9.72	+ 86 36	— 25.70						
50	— 6 15.13	30.21													
51	.48	30.42					7 31 23.97	5 36	+ 2.76						
52	— 4.71	35.37					18 21 9.20	+ 86 36	— 24.03						

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
4	Sun - -	- - - -	1 7.60	15 43.86
14	Mercury -	— .26		

3, 13. Unsteady.
16 to 24. At wires VII, V, III, clouded. Observed for dec. at 51m. 0s., 54m. 35s, 0m. 28s., 2m. 38s., 4m. 18s., 6m. 15s., 8m. 25s., 10m. 22s., 18m. 59s.

DATE.	No. for ref.	OBJECTS OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	Mean	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Raw.	Barometer.	THERM. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Raw.	In.	°	°
Aug. 21	1	51 Cephei, (Hev.) S. P.	--	--	--	16.0	--	--	--	18 27 16.00										
	2	β Lyræ	18.5	31.4	44.4	58.0	11.0	23.9	37.2	18 43 57.77										
	3	ζ Aquilæ	22.0	33.2	44.5	55.7	7.2	18.5	29.2	18 57 55.76										
	†4	δ Aquilæ	47.5	58.7	9.2	20.4	31.4	42.4		19 17 14.93										
	5	γ Aquilæ	58.7	10.4	21.1	32.4	43.2	54.9		19 38 26.78										
	6	α Aquilæ		30.4	41.0	52.0	3.7	14.7		29.42 52.36										
	7	λ Ursæ Minoris	39.0	58.5	2.0	23.0				20 0 30.62										
	8	λ Ursæ Minoris	12.0	52.0						20 36 32.00										
24	9	γ Draconis	37.7	55.8	13.4	31.0	18.8	6.2	23.8	17 52 30.96										
	10	β Lyræ			42.4	55.5	8.8	21.8	35.0	18 43 8.70										
	11	δ Aquilæ					29.7	40.6	51.4	19 17 40.57										
	12	γ Aquilæ	56.8	8.1	19.1	30.2	41.4	52.4	3.4	19 38 30.20										
	13	α Aquilæ	17.4	28.4	39.7	50.5	1.5	12.9	24.0	19 42 50.63										
	14	α² Capricorni	32.4	43.7	55.0	6.1	17.8	28.8	40.0	20 9 6.26										
	15	λ Ursæ Minoris	34.0	57.0	5.0	18.0	32.0	42.0	0.0	20 14 18.29										
	16	α Canis Minoris	14.3	25.4	36.4	47.3	58.3	9.4	20.1	7 30 47.31										
	17	β Geminorum	50.4	2.5	15.4	27.5	39 9	52.7	5.1	7 35 27.64										
25	18	Sun, 1st L.	57.7	9.0	20.2	30.9	42.4	53.7	5.0	10 15 31.27										
	19	Sun, 2d L.	7.2	18.1	29.8	40.9	52.0	3.1	14.4	10 17 40.79										
	20	Mercury, 1st L.	8.9	15.0	26.2	37.5	48.4	59.7	10.5	10 51 37.34										
	†21	Polaris, S. P.							57.0		52 32 61.4	58.6	64.5	62.8	61.82	IV.	42.698	30.158	80.0	83.5
	22							61.0									43.000			
	23						56.0										43.047	30.156	80.0	83.8
	24					56.0				13 4 57.57							43.038	30.154	80.2	83.8
	25				57.0												42.964			
	†26		61.0	55.0													42.670	30.152	80.3	83.8
	27	α Virginis	5.0	16.2	27.2	38.2	49.4	0.4	11.9	13 16 38.33										
	28	ε Ursæ Minoris	55.2	18.0	39.3	0.2	22.2	43.8	5.3	17 1 0.57	43 24 3.6	0.7	3.2	6.7	3.55	IV.	36.939	30.142	79.4	76.4
	29	δ Aquilæ	45.7	56.8	7.5	18.5	29.5	40.6	51.5	19 17 18.69	323 54 16.2	21.8	24.3	26.4	22.17		43.361	30.164	77.0	70.5
	30	γ Aquilæ	56.8	8.0	18.9	30.2	41.4	52.5	3.9	19 38 30.24	331 20 50.5	54.9	54.0	59.0	54.60		41.942	30.164	76.7	70.3
	31	α Aquilæ			39.4	50.4	1.7	12.5	23.9	19 43 1.58	329 32 49.5	55.0	54.4	58.8	54.43		44.587			
	32	β Aquilæ	46.2	57.4	8.4	19.4	30.2	41.1	52.3	19 47 19.29										
	33	α² Capriconi	32.3	43.4	54.8	6.0	17.5	28.8	39.9	20 9 6.10										
26	34	α² Geminorum	42.0	55.1	8.1	21.1	34.0	47.0	60.0	7 24 21.04										
	35	α Canis Minoris	14.2	25.0	36.4	47.4	58.4	9.4	20.3	7 30 47.30	326 41 59.4	63.2	64.8	68.8	64.05		41.994			75.4
	36	β Geminorum					40.0	52.7	5.0	7 35 52.57	349 29 57.0	58.4	60.4	62.8	59.65		38.900	30.241	76.0	75.7
27	37	Sun, 1st & N. L.	17.7	28.4	39.9	50.8	2.4	13.7	24.8	10 22 51.10	331 2 59.2	62.5	64.0	68.4	63.52	VI.	43.920			81.5
	38	Sun, 2d & S. L.	26.8	37.9	49.0	59.9	11.3	22.8	33.4	10 24 60.16						II.	39.485	30.228	79.5	83.0
	39	α Ursæ Majoris	31.4	55.3	19.3	43.2		30.9	54.4	10 53 39.08	23 38 60.0	55.0	60.8	61.8	59.40	IV.	41.025	30.224	80.2	
	†40	Mercury, 1st & S. L.			37.3	48.4	59.4	0.7	21.6	11 4 59.48	328 18 13.0	19.9	19.7	21.8	18.60		36.795	30.218	80.5	86.3
	†41	Mercury, N. L.															36.980			
	42	β Leonis					55.5	7.2	18.4	11 41 7.03										
	†43	γ Ursæ Majoris	16.7	35.8	54.7	13.3	32.3	51.2	10.4	11 45 13.49										
	44	δ Ophiuchi	17.4	28.4	39.5	50.5	1.6	12.6	23.5	16 5 50.50	317 47 59.5	65.3	61.8	68.2	63.70		41.804			
	45	α Scorpii	57.4	9.9	22.0	34.3	46.4	58.6	10.8	16 19 34.20	295 2 63.4	64.8	69.5	72.8	67.62		39.194	30.166	79.8	79.4
	46	ε Ursæ Minoris	54.8	17.0	38.7	0.0	21.9	43.2	4.5	17 1 0.01	43 20 57.9	55.4	58.2	60.5	58.20		42.357	30.176	79.5	77.4
	47	α Herculis	36.4	47.4	59.1	10.4	21.8	33.0	44.4	17 7 10.36	335 40 37.2	43.3	42.8	45.6	42.24	d.	40.278	30.170	79.4	76.4
	†48	α Ophiuchi	46.5	57.8	9.1	20.3	31.5	42.8	54.0	17 27 20.29	333 47 57.2	65.8	65.1	71.0	64.78		38.730	30.170	79.2	76.2
	49	58 Ophiuchi	12.8	24.7	36.3	48.2	0.2	12.0	23.5	17 33 48.24	299 32 58.0	61.8	66.4	69.8	64.00		37.532	30.174	79.2	76.4
	50	γ Draconis	37.7	55.3	13.2	30.6	48.4	6.0	23.6	17 52 30.69	12 35 55.7	53.8	59.4	62.8	57.93		41.630	30.176	79.0	75.5
	51	Moon, 1st L.	37.6	49.4	1.3	13.3	25.2	37.2	48.7	17 58 13.24										
	52	μ³ Sagittarii	34.3	46.0	57.7	9.4	21.4	33.0	44.6	18 4 9.49	299 59 56.1	60.8	63.0	64.8	61.18		44.085	30.182	78.5	74.7

Date.		Clock.	Hourly Rate.	VALUE OF m.	n.	c.	Error of Runs.	Mic. At.	
	h.	s.	s.	s.	s.	s.	″	h.	revs.
Aug. 21,	19	s 35.392	l .030	— .168	+ .025	— .314			
24,	19	37.372	.006						
	8	37.411	.002						
25,	20	37.426	.004						
26,	8	37.507	.007						
27,	11	37.698	.004						

1 rev. = 34″.515.

Aug. 21. Screw of reversing apparatus works stiffly, and jars the instrument.

40, 41. Mic. recorded 37r.795, 37r.980.

COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean
s.	s.	′ ″	′ ″	°	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
4.94	+ 35.37					18 27 56.31	+ 87 15	+ 34.08						
.53	35.38					18 44 32.62	33 12	— 0.02						
.49	35.39					18 58 30.66	13 39	+ 0.38						
5.00	35.40					19 17 55.33	2 49	0.50						
5.08	35.41					19 38 7.27	10 15	0.30						
.50	35.41					19 43 27.27	8 29	+ 0.33						
3 34.85	35.42					20 14 42.92	88 52	—100.81						
2 22.39	35.42													
.64	37.36					17 53 7.68	51 31	— 0.26			Aug.	25, 12h.		
13.63	37.37					18 44 32.44	33 12	+ 0.03		59.4	60.9	59.5	62.5	60.57
22,42	37.37					19 17 55.52	2 49	0.53		58.8	60.7	60.6	62.4	60.63
.49	37.38					19 38 7.09	10 15	0.33						
.48	37.38					19 43 27.53	+ 8 29	0.36		59.10	60.80	60.05	62.45	60.60
.50	37.38					20 9 43.14	— 13 0	+ 0.57						
15.07	37.38					20 14 40.60	+ 88 52	— 98.82			Mic.	39.687	—10	rdgs.
.49	37.41					7 30 24.23	5 36	+ 2.62						
.51	37.41					7 36 4.54	28 23	+ 3 14						
.48	37.41										Aug.	25, 17.	3h.	
.48	37.41					10 17 12.96				57.7	58.3	58.7	58.5	58.30
.48	37.41									57.7	59.5	60.0	58.0	58.80
						10 52 14.43								
		+ 1 56.72	+ 1 11.55	52 86 10.09						57.70	58.90	59.35	58.25	58.55
		1 56.83	1 11.52	10.17										
		1 55.48	1 11.52	8.82							Mic.	39.811	—10	rdgs.
10.89	37.42	1 55.11	1 11.50	8.43	39.705	13 5 45.88	+ 88 30 11.00	— 44.73	+ 25.31					
		1 55.47	1 11.49	8.78										
											Aug	27, 12.	5h.	
		+ 1 58.88	1 11.48	12.18						59.8	62.7	62.9	64.0	62.35
.49	37.42					13 17 15.26	— 10 22	+ 2.33		59.6	62.8	63.4	63.0	62.20
2.32	37.41	— 1 37.69	+ 52.42	43 23 18.28	39.769	17 1 35.66	+ 82 16 57.53	- 4.67	— 29.48					
.48	37.42	+ 2 3.96	— 40.90	323 55 45.23		19 17 55.53	2 49 24.38	+ 0.54	12.06	59.70	62.75	63.15	63.50	62.28
.48	37.42	1 14.99	30.69	331 21 38.90		19 38 7.18	10 15 18.15	0.33	12.23					
11.57	37.42	2 46.28	32.99	329 35 7.71		19 43 27.43	8 28 46.96	0.36	11.51		Mic.	39.685	—5	rdgs
.48	37.42					19 47 56.23	+ 6 2	0.38						
.50	37.43					20 9 43.03	— 13 0	0.58						
.52	37.50					7 24 58.02	+ 32 13	3.16			Aug.	27, 16.	9h.	
.48	37.50	+ 1 19.05	36.64	326 42 46.46	39.751	7 31 24.32	5 36 25.71	2.57	— 2.89	58.5	61.0	61.4	60.4	60.32
25.42	37.50	— 29.26	10.35	349 29 20.04		7 36 4.65	28 22 59.29	3.08	+ 2.47	58.8	61.0	60.7	60.5	60.25
.48	37.70	+16 55.66	26.08	331 19 33.10						58.4	61.0	61.4	59.9	60.18
.48	37.70	—14 42.89	— 26.67	330 47 53.96		10 24 32.85	9 57 22.78							
3.17	37.70	43.98	+ 23.96	23 40 7.34		10 54 19.95	62 33 46.59	5.56	— 13.91	58.57	61.0	61.16	60.27	60.25
11.53	37.70	1 42.02	— 30.49	328 13 40.56										
		— 1 35.64	30.49	328 13 46.93		11 5 25.81	7 9 48.53				Mic.	39.727	—10	rdgs.
23.22	37.70					11 41 21.51	15 25	2.88						
0.68	37.70					11 45 50.51	+ 54 32	4.33						
.48	37.53	+ 1 11.44	50.04	317 48 25.10		16 6 27.55	— 3 17 55.65	1.55	18.01					
.51	37.53	— 18.65	— 57.62	295 0 51.36		16 20 11.22	— 26 5 29.39	+ 1.63	9.64					
2.32	37.54	+ 1 30.53	+ 52.38	43 23 20.91		17 1 35.23	+ 82 17 0.16	— 4.30	29.55					
.49	37.54	+ 18.77	— 25.12	335 40 35.89		17 7 47.41	14 34 25.14	+ 1.05	21.78					
.49	37.54	— 34.66	27.37	333 47 2.74		17 27 57.34	+ 12 40 41.99	0.95	20.50					
.52	37.54	— 1 16.01	— 1 37.78	299 30 10.21		17 34 25.26	— 21 36 10.54	+ 1.25	9.32					
.64	37.54	+ 1 5.43	+ 12.47	12 37 15.83		17 53 7.59	+ 51 30 55.08	— 0.17	26.36					
.50	37.54					17 59 54.95	— 18 44							
.51	+ 37.54	+ 2 30.17	— 1 36.12	300 0 55.22		18 4 46.52	— 21 5 25.53	+ 1.12	— 8.65					

bject.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
	m. s.	m. s.	′ ″
ı - -		1 4.76	
rcury -	+ 0.16		
ı - -		1 4.53	15 49.57
rcury .	.16		3.18
on -	+ 1 4.67		

4. Poor observation. Wire slackened with moist atmosphere.
21 to 26. Transit observed by Lieut. Leigh. Circle and micrometer observations by Prof. Major at 48m. 58s., 57m. 22s., 3m. 30s., 6m. 21s., 12m. 46s., and 23m. 6s.
40, 41. Observation for semi-diameter not very good.
43. At wires V and VI, unsteady.
48. Observed with full aperture: too bright.
51. Wavering.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs	Barometer.	THER'S. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″			In.	°	°
Aug, 27	1	λ Sagittarii	28.4	40.5	52.2	4.4	16.8	28.9	41.0	18 18 4.60	295 38 56.7	60.9	66.0	66.2	62,45	IV.	38.607	30.186	78.5	74.4
	†2	α Lyræ	32.5	46.3	0.5	14.2	28.6	42.7	56.5	18 31 14.47										
	3	β Lyræ		29.4	42.6	55.5	8.7	21.8	34.6	18 44 2.10	354 17 49.4	51.4	53.0	56.2	52.50		40.492	30.188	78.0	73.7
	4	δ Aquilæ	45.5		6.4	18.5	29.4	40.3	51.5	19 17 21.93										
	5	γ Aquilæ		8.0	19.5	30.0	41.4	52.7	3.6	19 38 35.87	331 20 59.86	66.2	65.4	69.5	65.22		41.578	30.180	77.0	72.8
	6	α Aquilæ									329 35 55.0	60.4	62.5	66.5	61.10		39.139	30.180	77.0	72.8
	7	β Aquilæ		57.3	8.4	19.3	30.4	41.4	52.4	19 47 24.87										
30	8	ε Ursæ Minoris			27.5	59.0	20.8	42.2	3.7	17 2 20.60										
	9	α Herculis			38.4	9.5	20.4	32.2	43.4	17 7 20.78										
	10	α Ophiuchi	45.5	57.0	8.0	19.4	30.5	41.4	53.0	17 27 19.26	333 47 54.0	61.2	60.5	67.5	60.80		38.842	30.094	80.2	77.7
	11	γ Draconis	36.7	54.6	12.2	30.1	47.4	5.4	22.8	17 52 29.89	12 35 53.4	52.4	55.6	60.9	55.58		41.752	30.104	80.0	76.8
	12	μ^1 Sagittarii	33.2	45.1	56.7	8.5	20.4	32.1	43.8	18 4 8.54	300 2 55.7	58.2	63.0	64.4	60.32		38.830	30.104	80.0	76.5
	†13	δ Ursæ Minoris	16.5	21.8							47 41 60.5	59.9	63.9	65.0	62.33		38.854	30.105		76.0
	14				27.0												38.828			
	†15					31.2				18 20 31.53							38.830	30.106	80.0	76.0
	16						37.0										38.828			
	†17							41.0	46.2								38.858	30.106		76.0
	18	α Lyræ	31.3	45.5	59.8	13.5	27.7	41.7	55.6	18 31 13.59										
	19	δ Aquilæ		55.0	6.2	17.5	28.4	39.5	50.5	19 17 22.85										
	20	α Aquilæ		27.3	38.5	49.5	0.8	11.9	22.7	19 42 55.12										
	21	β Aquilæ	45.4	56.4	7.5	18.4	29.5	40.4	51.3	19 47 18.41										
	22	α^2 Capricorni	31.4		53.4	5.0	16.5	27.9	38.3	20 9 8.75										
	23	β Capricorni	22.0	33.4	14.7	56.4	7.5	19.0	29.8	20 11 56.11	305 50 51.9	52.2	55.4	59.0	54.62		42.700	30.096	78.2	74.7
	†24	ρ Capricorni				39.4	50.8	2.7	13.4	20 19 56.58	302 47 51.0	57.5	60.0	63.4	57.97		42.408	30.096	78.0	74.6
	25	Moon, 1st L.	21.5	33.4	45.4	57.0	8.8	20.7	32.0	20 34 56.97										
	26	ε Aquarii	21.3	32.0	43.4	54.7	5.9	17.0	27.5	20 38 54.54										
	27	μ Aquarii	21.4	32.9	44.0	55.0	6.2	17.4	28.0	20 43 54.99										
Sept. 1	28	12 Canum Ven.	36.0	50.1	4.2	18.4	32.5	46.6	0.6	12 48 18.34										
	†29	Polaris, S. P.	2.0			1.0	59.8	59.5	5.5	13 0 49.56										
3	30	Sun, 1st & S L.	43.3	54.4	5.5	16.7	27.5	38.3	49.4	10 48 16.44										
	31	Sun, 2d & N. L.	51.3	2.2	13.4	24.8	36.2	47.0	58.0	10 50 24.70										
4	32	α Ursæ Majoris	30.0	53.8	17.5	41.3	5.2	28.3	52.4	10 53 41.21										
5	33	α Virginis	2.5	13.6	25.0	36.2	47.3	58.4	9.5	13 16 36.07										
	34	η Ursæ Majoris	3.7	21.2	38.1	55.3	12.4	29.4	46.4	13 40 55.21										
	35	η Bootis	16.1	27.5	39.3	50.7	2.5	14.0	25.7	13 46 50.83										
	36	α Bootis	32.9	44.4	56.1	7.7	19.4	30.9	42.8	14 8 7.74										
	37	β Lyræ	13.5	26.6	39.8	53.0	6.1	19.3	32.3	18 44 52.94										
	38	ζ Aquilæ	17.1	28.5	40.0	51.2	2.4	13.5	25.0	18 57 51.10	334 44 54.3	61.2	63.4	64.7	60.90		41.212	30.080	75.0	71.3
	39	δ Aquilæ	43.2	54.2	5.2	16.0	27.3	38.0	48.8	19 17 16.10	323 53 56.5	65.2	68.2	67.8	64.42		44.085	30.080	74.8	70.9
	40	γ Aquilæ	54.4	6 0	16.8	27.7	39.0	50.3	1.0	19 38 27.89	331 20 56.2	60.3	64.9	65.1	61.62		41.957	30.076	74.7	70.3
	41	α Aquilæ	14.8	25.8	36.8	47.8	59.0	10.3	21.4	19 42 47.99										
	†42	λ Ursæ Minoris	22.0								49 57 2.5	0.3	9.2	3.4	3.86		39.979	30.070	74.2	69.6
	43			44.0													39.950			
	44				52.0												39.957			
	45					9.0				20 9 31.50							39.937			
	46						24.0										39.940			
	47							38.0									39.962			
	†48																39.980	30.070	74.0	69.4
	49	β Aquarii	26.5	37.5	48.0	59.8	10.7	21.7	32.9	21 22 59.59	314 53 59.1	64.2	71.3	68.5	65.78		39.267	30.072	73.0	68.5
	50	ε Pegasi	35.9	47.1	58.1	9.4	20.6	31.8	42.7	21 36 9.37	330 17 57.1	61.4	65.0	65.5	62.25		40.560	30.072	73.2	68.3
	51	Aquarii			14.3	25.2	36.4	47.0	57.7	21 57 36.12	320 2 55.0	53.0	56.0	57.2	55.35		42.358	30.068	73.0	67.9
	52	Neptune	9.5	20.6	31.7	43.0	54.2	5.0	16.4	22 20 42.91	310 2 53.7	58.6	65.7	63.0	60.25		43.013	30.076	73.0	67.6

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Aug. 27, 11	s 37.698	l .004	— .168	+ .025	— .314			
18	37.545	.005						
30, 19	38.471	.018						
Sept. 1, 13	39.473	.013	— .390	+ .016	— .314			
5, 14	39.926	.012						
19	39.984	.012						
22	40.161	.012						
7, 20	s 41.656	l .006						

1 rev. = 34.515″

Sept. 3. Adjusted the micrometer head.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	″	h. m s.	° ′ ″	s.	″	″	″	″	″	″
1	− 0.53	+ 37.55	− 38.91	− 1 55.70	295 36 27.84		18 18 41.62	− 25 29 52.91	+ 1.10	− 6.95					
2	0.55	37.55					18 31 51.47	+ 38 39	0.00			Aug.	30.	19.6h.	
3	7.09	37.55	+ 26.16	5.58	354 18 13.08	39.734	18 44 32.56	33 11 52.33	0.08	20.31	61.8	64.7	64.4	63.7	63.65
4	4.13	37.55					19 17 55.35	2 49	0.55		61.8	64.7	64.4	64.2	63.78
5	6.06	37.55	+ 1 3.64	30.56	331 21 38.30		19 38 7.36	10 15 17.55	0.34	12.45	61.6	64.2	64.9	64.7	63.85
6		37.55	− 20.54	32.85	329 35 7.70			8 28 46.95		11.76	61.73	64.53	64.56	64.20	63.76
7	6.00	37.55					19 47 56.42	6 2	+ 0.39						
8	1 23.99	38.44					17 1 35.05	82 17	− 3.70			Mic.	39.544	−10	rdgs.
9	11.82	38.44					17 7 47.40	14.34	+ 1.09						
10	.48	38.44	28.00	− 27.23	333 47 5.57	39.653	17 27 57.22	12 40 44.82	+ 0.99	20.58					
11	.64	38.45	1 12.43	+ 12.41	12 37 20.42		17 53 7.70	+ 51 30 59.67	− 0.09	26.63					
12	.51	38.45	28.42	− 1 35.55	300 0 56.36		18 4 46.48	− 21 5 24.39	+ 1.15	8.55					
13			29.18	+ 1 0.91	47 42 34.06										
14			28.70	1 0.91	34.54							Sept.	3.	11.5h.	
15	5.05	38.46	28.41	1 0.91	34.83		18 21 4.94	+ 86 36 13.73	− 20.69		60.8	63.9	67.4	65.7	64.45
16			28.81	1 0.91	34.43						60.4	64.8	67.5	66.4	64.78
17			− 28.71	+ 1 0.91	34.53						60.60	64.35	67.45	66.05	64.61
18	.55	38.46					18 31 51.50	38 39	+ 0.05						
19	5.98	38.47					19 17 55.34	2 49	0.57			Mic.	39.174	−10	rdgs.
20	6.03	38.48					19 43 27.57	8 29	0.39						
21	.48	38.48					19 47 56.41	+ 6 3	0.40						
22	4.25	38.49					20 9 42.99	− 13 0	0.59						
23	.50	38.49	+ 1 45.16	− 1 16.75	305 51 23.03		20 11 34.10	15 14 57.72	0.61	5.90					
24	17.83	38.49	1 35.62	1 26.01	302 48 7.58		20 20 17.24	18 18 13.17	0.61	5.02					
25	.41	38.50					20 36 39.97	16 13				Sept.	5.	21.h.	
26	.49	38.50					20 39 32.55	10 3	0.61		0.5	3.8	7.0	5.2	4.13
27	.49	38.50					20 44 33.00	− 9 33	0.46		1.4	4.8	8.0	5.4	4.90
28	− .78	39.47					12 48 57.03	+ 39 8	+ 3.11		0.95	4.30	7.50	5.30	4.51
29	+ 4 22.28	39.47					13 5 51.31	88 30	− 48.37						
30	− .70	39.73										Mic.	39.757	−10	rdgs.
31	.70	39.73					10 49 59.60								
32	1.04	39.99					10 54 20.16	+ 62 34	+ 5.50						
33	.71	39.92					13 17 15.28	− 10 22	2.43						
34	.86	39.92					13 41 34.27	+ 50 4	3.12						
35	.72	39.92					13 47 30.03	19 9	2.47						
36	.72	39.93					14 8 46.95	19 58	2.34			Sept.	7.	20.3h.	
37	.76	39.99					18 44 32.17	33 12	0.26		60.0	56.7	58.0	61.7	59.10
38	.71	39.99	45.72	26.38	334 45 20.34	39.887	18 58 30.38	13 38 59.49	0.59	16.49	60.9	57.0	58.7	60.2	59.20
39	.70	40.00	2 44.88	40.77	323 55 48.53		19 17 55.40	2 49 27.78	0.67	12.66					
40	.71	40.00	1 11.43	− 30.60	331 21 42.45		19 39 7.18	10 15 21.70	0.46	14.22	60.45	56.85	58.35	60.95	59.15
41	.71	40.00					19 43 27.28	8 28	+ 0.48			Mic.	39.746	−10	rdgs.
42			1.86	+ 1 6.68	49 58 12.41										
43			1.86	1 6.69	12.42										
44			2.30	1 6.69	12.85										
45	+ 4 21.56	40.06	1.70	1 6.70	12.26		20 14 33.12	+ 88 51 51.67	− 89.29	24.58					
46			1.80	1 6.70	12.36										
47			1.91	1 6.71	12.48										
48			+ 1.57	+ 1 6.71	12.14										
49	− .70	40.15	− 21.41	− 56.41	314 52 47.95		21 23 39.04	− 6 13 32.80	+ 0.38	4.55					
50	.71	40.15	+ 23.22	32.09	330 17 53.38		21 36 48.81	+ 9 11 32.63	0.13	5.48					
51	11.68	40.16	1 25.27	47.11	320 3 33.51		21 57 4.60	− 1 3 47.24	+ 0.26	− 3.49					
52	− .71	40.16	+ 1 47.88	− 1 6.64	310 3 41.49		22 21 22.36	− 11 2 39.26							

No.	Object.	COR. IN R. A. Semi-diam.	Observed semi-diam. Hor.	Observed semi-diam. Vert.
		m. s.	m. s.	′ ″
25	Moon -	+ 1 4.91		
30	Sun - -		1 4.13	

2. Unsteady.
13 to 17. Observed for Dec. at 17m. 34s., 19m. 2s., 20m. 35s., 22m. 9s., and 23m. 43s.
24. Observed for Dec. at 20m. 35s.
29. At wires II and III, clouded.
42 to 48. Misty. Observed for Dec. at 7m. 43s., 10m. 42s., 12m. 4s. 12m. 55s., 14m 38s., 18m. 15s., and 20m. 43s.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
			s.	s.	s.	s.	s.	s.	s.	m. s.	° ′ ″	″	″	″	″	Wire IV.	Revs.	In.	°	°
1849. Sept. 7	1	α Ophiuchi	42.3	53.9	5.2	16.5	27.4	39.0	50.1	17 27 16.34										
	†2	γ Draconis	34.3	51.3	9.2	26.4	44.3	2.2	19.5	17 52 26.74										
	†3	Ceres	5.0		30.5		55.5	8.0	21.0	18 2 48.00	291 29 49.4	45.7	51.0	53.4	49.88		42.554	30.100	74.2	66.7
	4	α Lyræ	27.9	42.0	56.0	10.2	24.3	38.3	52.4	18 31 10.16	359 47 64.0	59.7	61.5	65.2	62.60		35.370	30.112	73.5	65.8
	5	β Lyræ	11.9	24.8	38.0	51.1	4.2	17.4	30.2	18 43 51.09	354 18 3.9	3.2	3.9	9.6	5.15		40.034	30.122	72.8	65.5
	†6	61¹ Cygni							12.0	21 0 12.00	359 5 59.7	56.4	56.5	62.8	58.85		42.330	30.150	69.4	61.2
	7	ζ Cygni	14.8	27.3	40.0	52.7	5.3	17.9	30.5	21 5 52.64	350 41 55.2	53.2	56.0	60.4	56.20		42.558	30.152	69.0	60.5
	8	α Cephei	11.2	34.7	57.9	21.3	44.7	8.3	31.4	21 14 21.36										
	9	β Cephei			34.2	5.7	37.8	9.8	41.4	21 26 37.78										
	10	ε Pegasi		46.2	57.0	8.0	19.3	30.3	41.3	21 36 13.68										
	11	α Aquarii		1.7	12.3	23.5	34.7	45.5	56.3	21 57 29.00	320 2 56.0	58.8	59.8	65.0	59.65		42.289	30.164	67.4	58.9
9	12	ι Ursæ Majoris	20.0	37.2	53.5	9.9	26.6	43.1	59.6	8 48 9.99										
	13	α Hydræ	56.0	7.5	18.4	29.6	40.5	51.5	2.5	9 19 29.43										
	14	ε Leonis	59.3	11.4	23.7	35.5	47.6	59.4	11.8	9 36 35.53										
	15	α Leonis	5.3	16.4	27.4	38.8	50.1	1.2	12.2	9 59 38.77										
10	16	Sun, 1st L.	55.4	6.7	17.8	28.9	39.7	51.0	1.7	11 13 28.74										
	17	Sun, 2d L.	3.7	15.0	26.0	37.0	48.0	59.0	10.0	11 15 36.96										
	†18	Mercury, 1st L. & cen.	0.3	10.7	22.2	33.2	44.2	55.2	6.3	12 26 33.16	317 44 53.2	47.2	49.0	54.4	45.95		40.669	30.464	69.4	70.5
	19	α Lyræ	28.4	42.2	56.5	10.4	24.5	38.4	52.5	18 31 10.41	359 44 58.0	61.1	56.5	63.2	62.20		40.823	30.416	69.7	62.0
	20	β Lyræ	11.9	25.0	38.1	51.2	4.5	17.4	30.5	18 43 51.23	354 18 0.9	0.7	1.0	7.3	2.47		40.394	30.413	61.6	69.8
	†21	δ Aquilæ	41.2	52.2	3.3	14.4	25.5	36.4	47.2	19 17 14.31	323 57 2.7	3.8	6.3	9.7	5.62		38.796	30.412	69.4	59.7
	22	β Aquilæ	42.0	53.2	4.1	15.3	26.2	37.2	48.1	19 47 15.16	327 9 0.4	2.0	4.5	7.6	3.62		40.411	30.412	68.2	58.3
	23	α² Capricorni	28.2	39.5	50.5	1.8	13.4	24.5	35.8	20 9 1.96										
	†24	61¹ Cygni			16.0	30.3	43.9	58.0	12.0	20 59 44.04	359 5 56.5	53.7	54.5	60.0	56.18		42.537	30.420	67.0	56.3
	†25	ζ Cygni	14.5	27.3	40.1	52.4	5.3	17.7	30.1	21 5 52.49	350 44 56.0	53.5	54.7	59.3	55.88		37.534	30.416	67.2	56.2
	26	ε Pegasi	34.6	46.0	57.0	7.9	19.0	30.2	41.4	21 36 8.01	330 18 1.8	3.2	4.8	9.4	4.80		40.498	30.414	66.0	55.3
	†27	Metis	54.5	6.3	17.1			52.4		22 1 17.57	299 5 60.0	56.7	62.9	64.5	61.02		46.032	30.412	65.0	54.8
	28	Neptune	37.5	48.4	0.4	11.4	22.7	33.5	44.8	22 20 11.24	310 2 59.7	57.2	62.3	63.0	60,55		37.980	30.408	67.8	54.4
	†29	ε Leonis	59.5	11.5	23.4	35.5	47.5	59.5	11.6	9 36 35.50										
	30	α Leonis	5.1	16.3	27.5	38.7	50.0	1.3	12.4	9 59 38.76										
12	†31	δ Aquilæ	41.3	52.3	3.4	14.4	25.2	36.4	47.0	19 17 14.29	323 57 4.7	5.3	7.2	11.4	7.15		38.702	30.316	70.7	65.7
	32	γ Aquilæ	52.4	3.8	14.9	26.0	37.5	48.1	59.5	19 38 25.99	331 23 59.0	60.2	60.8	65.7	61.43		36.717	30.315	70.7	64.3
	33	α Aquilæ	12.7	23.9	35.2	46.2	57.5	8.1	19.7	19 42 46.19	329 35 47.0	48.6	49.0	53.5	49.38		39.655	30.315	70.7	64.3
	34	β Aquilæ	41.8	53.0	4.0	15.0	26.2	37.0	48.2	19 47 15.03	327 9 11.1	12.8	14.5	18.9	14.33			30.316	70.5	63.8
	35	α² Capricorni	27.9	39.3	50.5	1.7	13.3	24.3	35.6	20 9 1.80	308 2 58.2	55.8	61.1	63.5	59.45	V.	37.290	30.324	70.2	63.1
	†36	α Cygni			23.2	38.3	54.2	9.9	25.2	20 35 54.16	5 50 62.4	54.2	58.5	62.7	59.45	IV.	40.458	30.328	69.8	62.4
	37	61¹ Cygni	48.2	2.6	16.8					20 59 2.53										
	38	ζ Cygni			40.0	52.7	4.8	17.8	30.2	21 5 5.10	350 44 61.9	58.7	61.4	66.2	62.05		37.325	30.328	69.5	61.5
	39	α Cephei	11.2	34.7	58.1	21.2	44.9	7.9	31.0	21 14 21.29	23 2 64.4	55.4	60.5	63.9	61.05		40.195	30.326	69.2	60.9
	†40	β Aquarii	24.9	35.9	47.0	58.0	9.3	20.2	31.3	21 22 58.09	314 54 2.8	2.4	7.8	8.7	5.43		39.308	30.322	68.8	60.9
	41	ε Pegasi	34.5	45.7	56.8	7.8	19.0	30.2	41.2	21 36 7.89										
	42	Neptune	25.8	37.2	48.2	59.5	10.4	21.3	32.9	22 19 59.33	310 3 1.8	0.4	6.5	7.4	4.03		35.823	30.310	67.8	59.5
	43	ζ Pegasi			6.4	17.5	28.5	40.0	51.0	22 33 28.68										
	44	α Piscis Australis			27.2	40.0	52.7	5.2	17.9	22 48 52.60	290 41 56.7	54.2	60.7	61.8	58.35		43.295	30.308	67.2	58.8
	45	α Leonis			27.2	38.5			12.7	9 59 46.13										
14	46	Sun, 1st L.	17.1	28.3	39.4	50.2	1.2	12.4	23.2	11 27 50.26										
	47	Sun, 2d L.	24.2	36.3	47.2	58.2	9.2	20.2	31.0	11 29 58.04										
	48	α Bootis	29.4	41.0	52.9	4.2	16.0	27.5	39.4	14 8 4.34										
15	49	Polaris, S. P.	0.0	57.0	57.5	59.0	58.5	1.0	4.0	13 4 59.57										
	50	α Virginis	58.3	9.4	20.7	32.0	43.2	54.2	5.3	13 16 31.87										
	51	α Bootis	28.5	40.4	51.9	3.5	15.5	26.8	38.4	14 8 3.57										
16	†52	α Hydræ	53.2	4.0	15.3	26.0	37.4	48.5	59.5	9 19 26.27										

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At		1 rev. = 34.515″
h.	s.	s.	s.	s.	s.	″	h.	revs.	
Sept. 7, 20	s 41.656	l 0.006	— .390	+ .016	+ .314				
9, 9	41.734	.001							
10, 20	41.644	.009							
10, 10	41.861	.006							
12, 21	41 764	.017							
14, 14	43.147	.034							
15, 14	44 013	.028							
16, 10	s 45.010	l .016							

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	″	′	″	″	″	″	″
1	− .71	+ 41.64					17 27 57.27	+ 12 41	+ 1.16						
2	.87	41.64				39.722	17 53 7.51	51 30	0.19						
3	5.80	+ 41.64	+ 1 37.75	− 2 18.97	291 29 8.65	39.722	18 3 23 84	− 29 37 12.10					h.		
4	.78	41.64	− 2 30.20	0.23	359 45 32.17		18 31 51.02	+ 38 39 11.42	+ 0.26	− 23.20		Sept.	10, 20.	6	
5	.76	41.65	+ 10.78	5.65	354 18 10.28		18 44 31.98	33 11 49.53	+ 0.31	21.58	58.0	55.1	56.7	57.6	56.85
6	42.47	41.66	1 29.78	0.87	359 7 27.76		21 0 11.19	38 1 7.01	− 0.46	9.62	57.6	54.0	55.8	57.0	56.10
7	.74	41.66	1 37.89	9.36	350 43 24.73		21 6 33.56	29 37 3.98	0.28	9.64	58.2	54.3	55.2	56.5	56.05
8	1.03	41.66					21 15 1.99	61 57	2.46		58.2	53.8	55.4	56.5	55.97
9	33.17	41.66					21 26 46.27	69 54	− 4.10		57.7	54.0	54.7	56.5	55.73
10	6.27	41.66					21 36 49.07	+ 9 11	+ 0.14						
											57.94	54.24	55.56	56.82	56.14
11	6.20	41.67	1 28.61	48.09	320 3 40.17		21 57 4.47	− 1 2 40 58	0.26	3.60					
12	.85	41.73					8 48 50.87	+ 48 38	3.91						
13	.71	41.73					9 20 10.45	− 8 0	2.46			Sept.	12, 20.	5h.	
14	.73	41.73					9 37 16.53	+ 24 28	3.07		58.0	53.7	54.9	56.4	55.75
15	.71	41.73					10 0 19.79	+ 12 42	2.84		57.2	53.0	53.9	57.0	55.28
16	.70	41.74									58.9	53.5	55.7	58.2	56.58
17	.70	41.74					11 15 13.86				58.5	54.9	56.3	57.7	56.85
18	.71	41.74	24.22	46.99	317 44 28.18		12 27 14.36	− 3 21 52.57			58.4	54.8	56.5	57.3	56.75
19	.78	41.63	30.10	.23	359 45 2.20	39.951	18 31 51.26	+ 38 39 11.32	0.32	23.48	57.2	54.0	55.0	58.3	56.12
20	.76	41.63	+ 15.29	5.67	354 18 12.09		18 44 32.10	33 11 51.31	0.36	21.87	58.03	53.98	55.38	57.48	56.22
21	.70	41.64	− 39.86	42.10	323 55 43.66		19 17 55.25	2 49 22.91	0 73	12.88					
22	.71	41.64	+ 15.88	37.44	327 8 42.06		19 47 56.09	+ 6 2 21.31	0.55	12.24					
23	.71	41.64					20 9 42.90	− 13 0	+ 0.71						
24	14.70	41.65	+ 1 29.25	00.88	359 7 25.43		21 0 10.99	+ 38 1 3.80	− 0.44	10.31					
25	0.74	41.65	− 1 23.43	09.52	350 43 22.53		21 6 33.40	+ 29 37 1.78	− 0.26	10.20					
26	− 0.71	41.66	+ 18.87	33.29	330 17 50.38		21 36 48.96	+ 9 11 29.63	+ 0.14	5.99					
27	+ 11 09	41.66	+ 3 29.44	1 39.17	299 7 51.29		22 2 10.32	− 21 58 29.46							
28	− 0.71	41.67	− 1 8.04	1 9.29	310 0 43.22		22 20 52.20	− 11 5 37.53							
29	.73	41.86					9 37 16.63	+ 24 28	+ 3.05						
30	.71	41.86					10 0 19.91	12 42	− 2.82						
31	.71	41.74	43.21	41.51	323 55 42.43	39.954	19 17 55.32	2 49 21.68	+ 0.75	12.95					
32	.71	41.74	1 51.72	31.21	331 21 38.50		19 39 7.02	10 15 17.75	0.54	13.72					
33	.71	41.74	− 10.32	33.55	329 35 5.51		19 43 27.22	8 28 44.76	0.56	12.93					
34	.71	41.74	+ 3.78	36.94	327 8 41.17		19 47 56.06	+ 6 2 20.42	0.56	12.34					
35	.72	41.75	4 18.61	− 1 12.92	308 6 5.14		20 9 42.83	− 13 0 15.61	+ 0.72	6.26					
36	− 16.26	41.76	+ 17.40	+ 05.89	5 51 22.74		20 36 19.66	+ 44 45 1.99	− 0.73	14.38					
37	+ 27.04	41.76					21 0 11.33	38 1	0.47						
38	− 13.35	41.76	− 1 30.74	− 09.40	350 43 21.91		21 6 33.51	29 37 1.16	0.25	10.56					
39	1.03	41.77	+ 8.32	+ 24.51	23 3 33.88		21 15 2.03	+ 61 57 13.13	− 2.36	10.33					
40	.71	41.77	− 22.30	− 57.73	314 7 14.20		21 23 39.15	− 6 13 35.35	+ 0.39	− 4.66					
41	.71	41.77					21 36 48.95	+ 9 11	0.14						
42	.71	41.79	− 2 25.58	1 8.62	309 59 33.03		22 20 40.41	− 11 6 47.72							
43	11.85	41.79					22 33 58.62	+ 10 3	0.04						
44	13.48	41.79	+ 1 55.32	− 2 31.45	290 41 22.22		22 49 20.91	− 30 24 58.53	0.38	+ 0.69					
45	8.20	41.99					10 0 19.92	+ 12 42	2.78						
46	.70	43.06													
47	.70	43.06					11 29 36.51								
48	− .72	43.15					14 8 46.77	19 58	+ 2.43						
49	+ 11.02	43.99					13 5 54.58	+ 88 30	− 54.39						
50	− .71	43.99					13 17 15.15	− 10 22	+ 2.49						
51	.72	44.01					14 8 46.86	+ 19 58	2.44						
52	− .71	+ 45.00					9 20 10.56	− 8 0	+ 2.35						

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
16	Sun - -	- - - - -	1 4.11	
18	Mercury	+ .17		
46	Sun - -	- - - - -	1 3.89	

2, 31. Observed with full aperture.
2, 18, 21, 24, 25, 29, 36, 37. Unsteady.
3, 6. Observed for dec. at wire VII.
3, 27, 29, 52. Faint.
40. With circle unclamped.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THER'S. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″			In.	°	°
Sept. 16	† 1	α Leonis - - - - -	2.0	13.3	24.3	35.7	46.9	58.1	9.2	9 59 35.64						IV.				
	2	α Ursæ Majoris - -	25.1	49.0	12.5	36.4	0.4	24.3	47.8	10 53 36.50										
17	3	Sun, 1st L. - - -	1.3	12.4	23.6	34.4	45.2	57.7	7.4	11 38 34.57										
	4	Sun, 2d L. - - -	9.4	20.6	31.5	42.4	53.5	4.4	15.3	11 40 42.44										
18	5	Polaris, S. P. - -	59.5	56.0	57.5	58.0	56.0	2.0	59.0	13 4 58.29										
	6	η Ursæ Majoris - -	58.4	15.3	33.0	49.6	7.0	24.1	41.0	13 40 49.77										
	7	α Bootis - - - - -	27.3	39.0	50.6	2.0	14.1	25.5	37.4	14 8 2.27										
	† 8	α Aquilæ - - - -	9.4	20.2	31.3	42.3	53.2	4.5	15.6	19 42 42.36										
	9	β Aquilæ - - - -	38.1	49.4	0.3	11.4	22.5	33.5	44.3	19 47 11.36										
	10	α^2 Capricorni - - -	24.5	35.8	47.0	58.3	9.6	20.8	32.0	20 8 58.29										
	†11	α Cygni - - - - -				35.0	51.0	6.3	21.8	20 35 58.53										
	†12	61^1 Cygni - - - - -	44.4	58.5	12.3	26.5	40.2	54.4	8.4	20 59 26.39										
	13	ζ Cygni - - - - -		23.4	36.2	49.0	1.3	14.1	26.6	21 5 55.10	350 45 2.9	0.9	0.2	5.9	2.48		36.695	30.208	74 0	62.8
	14	α Cephei - - - -	7.6	31.0	54.7	17.3	41.3	5.0	27.5	21 14 17.77	23 3 5.0	0.0	0.3	4.8	2.55		39.660	30.206	73.4	61.9
	15	ε Pegasi - - - - -	30.9	42.0	53.2	4.5	15.4	26.4	37.4	21 36 4.26	330 17 60.0	60.2	59.0	63.9	60.78			30.210	72.7	61.6
	†16	Metis - - - - -	50.9	3.0	14.4	26.3	38.3	50.0	2.0	21 55 26.41	298 53 58.4	57.6	62.4	63.9	60.57		41.659	30.216	71.5	61.1
	17	Neptune - - - -	47.7	59.2	10.1	21.4	32.5	43.7	54.8	22 19 21.34	309 56 56.0	58.7	60.2	62.8	59.43		40.171	30.217	71.1	60.7
21	18	61^1 Cygni - - - - -					40.0	54.0	8.0	20 59 54.00	359 5 65.3	60.8	59.0	64.8	62.48		41.840			60.7
	19	ζ Cygni - - - - -	11.0	23.4	36.2	48.8	1.3	14 0	26.5	21 5 48.74	350 45 0.3	0.9	0.4	5.6	1.80		36.815	30.056	66.2	60.4
	20	α Cephei - - - -	7.2	30.4	54.4	17.5	40.8	4.1	27.4	21 14 17.40	23 2 62.8	58.0	59.8	63.2	60.95		39.749	30.052	66.5	60.3
	21	β Aquarii - - - -	21.4	32.3	43.1	54.1	5.2	16.3	27.5	21 22 54.27	314 54 4.5	7.1	8.4	11.8	7.95		38.567	30.056	66.2	60.2
	22	ε Pegasi - - - - -	30.3	42.0	53.0	4.0	15.4	26 3	37.3	21 36 4.04	330 17 55.7	58.7	57.0	62.8	58.55		40.125	30.052	65.9	59.9
	†23	Metis - - - - -	0.5	12.0	24.3				11.2	21 53 27.00	298 50 55.5	57.9	57.2	61.1	57.93		43.850	30.050	65.4	59.4
	†24	Neptune - - - -	31.2	42.4	53.4	5.0	16.0	27.2	38.2	22 19 4.77	309 54 14.0	14.1	16.3	20.2	16.15		42.254	30.048	64.3	58.9
	25	α Piscis Australis - -	57.8	10.6	23.3	36.1	48.8	1.3	14.0	22 48 35.99	290 42 1.1	1.7	5.8	6.9	3.88		42.549	30.050	63.8	58.3
	26	α Pegasi - - - - -	59.0	10.2	21.1	32.9	44.3	55.6	6.8	22 56 32.84	335 30 2.5	4.5	5.6	10.2	5.70		40.584	30.048	63.8	58.5
24	27	Sun, 1st L. - - -	9.1	20.3	31.3	42.3	53.1	4.1	15.2	12 3 42.20										
	28	Sun, 2d L. - - -	17.2	28.2	39.2	50.1	1.0	12.2	23.0	12 5 50.13										
	†29	Polaris, S. P. - -	4.0	59.5	59.0	1.0	59.0	58.0	3.0	13 5 0.50										
	30	α Bootis - - - - -	25.4	37.2	48.8	0.4	12.1	24.0	35.3	14 8 0.46										
	†31	Neptune - - - -	13.5	24.2	36.2	47.2	58.2	9.6	20.2	22 18 47.01	309 53 57.0	57.4	57.4	63.4	58.80		40.110	29.922	62.7	56.0
	32	ζ Pegasi - - - - -	39.4	50.5	1.3	12.5	24.0	35.0	46.2	22 33 12.70	331 9 1.4	4.8	2.3	8.1	4.40		40.945	29.928	63.4	57.1
	33	α Piscis Australis - -	56.2	9.0	21.3	34.5	47.3	0.0	12.8	22 48 34.44	290 42 0.0	0.2	3.6	4.8	2.15		42.575	29.920	62.4	56.4
	34	α Pegasi - - - - -	57.3	8.5	20.2	31.3	42.8	54.0	5.4	22 56 31.36	335 29 58.0	61.7	60.0	68.0	61.93		40.757	29.926	62.5	56.0
	†35	ι Piscium - - - -	54.6	5.7	16.9	28.0	38.8	50.0	1.1	23 31 27.87	325 53 58.5	63.3	59.0	67.0	61.95		42.540	29.932	62.2	54.3
	36	α Leonis - - - -	0.3	11.4	22.7	34.0	45.2	56.3	7.6	9 59 33.93	333 47 60.0	60.9	56.2	63.9	60.25		40.890	29.988	63.0	66.9
25	37	Sun, 1st and N. L. -	45.2	56.4	7.2	18.1	29.2	40.1	51.1	12 7 18.19	320 5 58.7	60.4	60.3	64.9	61.08	VI.	44.452	29.956		70.8
	38	Sun, 2d and S. L. -		4.9	15.1	26.2	37.2	48.9	59.0	12 9 31.88	320 5 58.0	59.9	60.4	64.7	60.75	II.	39.708	29.954	66.5	72.4
	†39	Polaris, S. P. - -	6.0	3.0	2.0	2.0	4.0	6.0	1.0	13 5 3.43										
	40	η Ursæ Majoris - -	56.2	14.0	31.1	48.0	5.2	22.2	39.3	13 40 48.00	11 8 48.2	42.9	43.5	49.2	45.95		42.247	29.918	70.8	75.2
	41	α Bootis - - - - -	25.3	37.0	49.0	0.5	12.2	24.0	35.3	14 8 0.47	341 6 1.9	2.9	0.3	7.2	3.08	IV.	37.626	29.914	71.7	76.3
	42	γ Draconis - - - -		45 3	3.0	20.4	38.3	55.8	13.1	17 52 29.32	12 35 58.8	50.0	52.5	56.2	54.38		41.548	29.844	68.8	70.5
	†43	μ^1 Sagittarii - - - -		36.2	48.0	59.7	11.5	23.4	35.0	18 4 5.63	299 59 57.2	57.4	58.1	60.7	58.35		43.820	29.840	69.5	69.7
	44	δ Ursæ Minoris -									47 41 60.7	57.4	59.8	60.7	59.65		38.740			
	45			1.8													38.732			
	46				6.5												38.728			
	47					11.5				18 21 44.30							38.703	29.840	69.6	68.8
	48						17.0										38.722			
	49							22.0									38.738			
	50								27.0								38.747			68.2
	51	α Lyræ - - - - -	22.4	36.6	50.8	4.9	19.0	32 9	46.8	18 31 4.77										
	52	β Lyræ - - - - -	6.4	19.4	32.4	45.4	59.0	12.0	25.0	18 43 45.66	354 17 55.5	62.7	60.2	65.9	61.08		39.974	29.836	69.7	66.9

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Sept. 18, 14	s 45.186	l .008	— .390	+ .016	— .314			
21	45.249	.006						
21, 22	45.410	.012						
24, 14	46.921	.010					22	40.110
23	46.866	.006						
25, 13	46.890	.000						
18	46.894	.000						

1 rev. = 34.″515.

24. Circle reading recorded, 309° 53′, &c.
43. Transit recorded, 37s.2, 49.0, &c.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	— .71	+ 45.01					10 0 19.94	+ 12 42	+ 2.74						
2	1.04	45.02					10 54 20.48	62 33	5.35			Sept.	18.	20.5	.
3	.71	45.04					11 40 22.83				60.9	59.8	58.2	60.5	59.85
4	— .71	45.04									60.8	60.2	58.2	60.6	59.95
5	+ 11.03	45.06					13 5 54.38	88 30	— 55.28		61.1	59.8	58.0	60.2	59.78
6	— .86	45.18					13 41 34.09	50 4	+ 3.33		60.93	59.93	58.13	60.43	59.86
7	.72	45.19					14 8 46.74	19 58	2.49						
8	.71	45.24					19 43 26.89	8 29	0.67			Mic.	39.325	—10	rdgs.
9	.71	45.24					19 47 55.89	+ 6 2	0.67						
10	.72	45.24					20 8 42.81	— 13 0	+ 0.82						
11	23.97	45.25					20 36 20.11	+ 44 45	— 0.59						
12	.77	45.25					21 0 10.87	38 1	0.32			Sept.	21.	22.5h.	
13	7.06	45.25	— 1 30.64	— 9.33	350 43 22.51	39.321	21 6 33.29	29 37 1.76	0.16	— 11.58	1.1	0.7	0.5	2.2	1.12
14	1.03	45.25	+ 11.69	+ 24.35	23 2 38.59		21 15 1.99	61 57 17.84	— 2.18	12.00	1.5	1.0	0.0	3.0	1.38
15	.71	45.25	25.51	— 32.65	330 17 53.64		21 36 48.80	+ 9 11 32.89	+ 0.21	6.69	1.3	1.4	0.3	2.0	1.25
16	.74	45.25	1 20.24	1 38.30	298 53 42.51		21 56 10.92	— 22 12 38.24							
17	.71	45.26	29.34	1 8.16	309 58 20.61		22 20 5.89	— 11 10 0.14			1.30	1.03	0.27	2.4	1.25
18	28.60	45.40	+ 1 26.65	0.87	359 7 28.16	39.329	21 0 10.80	+ 38 1 7.51	— 0.27	12.55		Mic.	39.293	—10	rdgs.
19	.74	45.40	— 1 26.79	— 9.33	350 43 25.46		21 6 33.40	29 37 4.71	0.12	12.04					
20	1.03	45.40	+ 14.48	+ 24.32	23 3 39.75		21 15 1.77	+ 61 57 19.00	— 2.09	12.78					
21	.71	45.40	— 26.31	— 57.30	314 52 44.34		21 23 38.96	— 6 13 36.41	+ 0.48	4.68					
22	— .71	45.41	+ 27.46	32.61	330 17 53.40		21 36 48.74	+ 9 11 32.65	0.23	— 6.92		Sept	24.	23h.	
23	+ 8.14	45.41	2 36.01	1 38.35	298 51 55.59		21 54 20.55	— 22 14 25.16			58.2	57.4	55.8	57.5	57.22
24	— .71	45.41	1 40.94	1 8.12	309 54 48.97		22 19 49.47	11 11 31.78			58.3	57.7	56.1	57.8	57.48
25	.76	45.42	1 51.12	2 30.34	290 41 24.66		22 49 20.65	— 30 24 56.09	+ 0.40	+ 1.88	58.0	57.5	56.0	58.1	57.40
26	.71	45.42	43.30	26.12	335 30 22.88		22 57 17.55	+ 14 24 2.13	— 0.02	— 2.49	58.17	57.53	55.97	57.80	57.39
27	.70	46.90					12 5 32.36								
28	— .70	46.90										Mic.	39.508	—10	rdgs.
29	+ 11.04	46.91					13 5 58.45	88 30	— 57.42						
30	— .72	46.92					14 8 46.66	+ 19 58	+ 2.54						
31	.71	46.86	23.40	1 8.28	309 53 13.92	39.432	22 19 33.16	— 11 13 6.83							
32	.71	46.86	52.24	31.53	331 9 25.11		22 33 58.85	+ 10 3 4.36	0.08	— 3.91		Sept.	25.	20h.	
33	.76	46.86	1 48.50	2 30.27	290 41 20.38		22 49 20.54	— 30 25 0.37	+ 0.40	+ 2.25	61.7	60.2	58.7	60.7	60.32
34	.71	46.87	45.75	26.14	335 30 21.54		22 57 17.52	+ 14 24 0.79	— 0.03	— 2.88	61.2	60.2	58.2	60.8	60.10
35	.70	46.87	1 47.29	38.94	325 55 10.30		23 32 14.04	4 48 49.55	+ 0.08	0.62	61.7	60.0	58.7	60.2	60.15
36	.71	46.89	50.34	27.70	333 48 22.89	39.384	10 0 20.11	+ 12 42 2.14	+ 2.60	9.51	61.53	60.13	58.53	60.57	60.19
37	.70	46.89	+ 17 26.68	40.66	320 22 47.10		12 9 8.48	— 0 59 29.67							
38	— 6.19	46.89	— 14 22.53	— 43.17	319 50 55.05							Mic.	39.378	—10	rdgs.
39	+ 11.04	46.89					13 6 1.36		— 57.65						
40	— .86	46.89	+ 1 38.81	+ 10.92	11 10 35.68		13 41 34.03	+ 50 4 14.93	+ 3.41	22.02					
41	.72	46.89	— 1 0.68	— 18.91	341 4 43.49		14 8 46.64	19 58 22.74	2.54	22.88					
42	9.70	46.89	+ 1 14.69	+ 12.46	12 37 21.53		17 53 6.51	+ 51 31 0.78	0.80	27.66					
43	6.62	46.89	+ 2 33.11	— 1 36.00	300 0 55.46		18 4 45.90	— 21 5 25.29	+ 1.63	8.35					
44			— 23.27	+ 1 1.24	47 42 37.62										
45			22.76	1 1.25	38.14										
46			22.73	1 1.26	38.18										
47	1 38.10	46.89	23.50	1 1.28	37.43		18 20 53.09	+ 86 36 17.09	— 10.10	26.01					
48			23.20	1 1.29	37.74										
49			22.99	1 1.30	37.96										
50			— 23.16	+ 1 1.31	37.80										
51	.78	46.89					18 31 50.86	38 39	+ 0.70						
52	.76	+ 46.89	+ 20.36	— 5.58	354 18 15.86		18 43 31.79	+ 33 11 55.11	+ 0.70	22.82					

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
3	Sun - -		1 3.94	
27	Sun - -		1 3.96	
37	Sun - -		1 4.10	15 56.03

1, 8, 11, 12, 35. Unsteady; 11 blurred.
16, 23. Very faint; 16 observed for dec. at 56m. 4s.
29. Observed in the northern part of the field, near mic. wire VII, mic. IV being at 45 rev.
31. Observed for dec. with fixed wire.
39. Observed in southern part of the field, near mic. wire I, mic. IV being at 35 rev.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Oct. 8	1	ζ Cygni	5.0	18.0	30.8	43.2	56.1	8.5	20.9	21 5 43.21						IV.				
	2	α Cephei	1.8	25.0	48.7	11.9	35.1	58.1	21.7	21 14 11.76	23 2 58.0	52.4	53.5	57.7	55.40		40.241	30.086	59.2	48.0
	3	β Aquarii	15.9	27.1	38.0	49.2	0.2	11.3	22.3	21 22 49.14										
	4	β Cephei		51.9	24.0	55.9	27.5	59.5	31.7	21 26 11.75										
	† 5	ε Pegasi	25.0	37.1	48.3	59.3	10.4	21.0	32.4	21 35 59.07	330 18 0.6	2.2	2.0	6.8	2.90		40.165	30.084	58.1	47.9
	6	Metis			51.4			26.3	38.4	21 48 18.70	299 18 0.2	0.5	2.2	7.0	2.48		38.620	30.086	57.2	47.8
	7	Neptune	4.0	15.2	26.4	37.4	48.4	59.7	11.2	22 17 37.47	309 47 59.8	59.8	62.4	63.8	61.45		39.830	30.082	56.5	47.3
15	8	β Leonis		5.2	16.5	28.2	39.3	50.3	2.1	11 40 33.60										
	9	γ Ursæ Majoris	0.8	19.7	38.4	57.4	16.5	35.3	54.1	11 44 57.46										
16	10	α Bootis	17.5	29.5	41.0	52.5	4.4	16.0	27.5	14 7 52.63										
	11	δ Aquilæ	20.4	31.5	42.4	53.4	4.3	15.5	26.4	19 16 53.41										
19	†12	Polaris, S. P.	58.0	54.0	50.5	48.5	47.0	48.0	48.0	13 4 50.57										
20	13	Sun, 1st L.	20.5	31.6	43.0	54.4	5.4	16.5	27.4	13 38 54.11										
	14	Sun, 2d L.	32.0	43.1	54.1	5.1	16.9	27.6	39.0	13 41 5.40										
22	15	δ Aquilæ	21.4	32.3	43.3	54.2	5.4	16.3	27.2	19 16 54.30										
	†16	α Cygni		47.5	3.2	18.0		49.7	4.9	20 35 24.66										
	†17	γ Ursæ Majoris				50.4	9.4	28.3	47.1	11 44 18.80										
	18	Venus, 2d L. S. L.	39.2	50.2	1.4	12.3	23.4	34.3	45.2	11 58 12.29	322 50 58.0	59.7	57.1	65.4	60.05		42.372	29.836	58.4	59.5
	†19	Venus, 2d L. N.L.															42.715			
	†20	Polaris, S. P.							45.0		52 35 59.0	58.4	54.6	59.9	57.96	d	37.870	29.817	60.0	62.6
	21							47.0									37.969			
	22						47.0										38 042			
	†23					49.0				13 4 51.29							38.086	29.814	60.3	63.0
	24				51.0												38.108			
	25			58													38.115			
	26																38.129	29.810	60.5	63.4
	†27		2.0														38.039			
23	28	α Bootis	10.8	22.4	34.2	46.0	57.4	9.3	20.8	14 7 45.84										
	†29	α Serpentis					0.5	11.5	22.4	15 36 11.47										
24	30	δ Aquilæ	20.4	31.5	42.4	53.4	4.3	15.5	26.4	19 16 53.41										
	31	γ Aquilæ	31.7	43.0	54.1	5.2	16.4	27.4	38.8	19 38 5.23										
	32	α Aquilæ	52.2	3.3	14.3	25.5	36.4	47.5	58.7	19 42 25.41										
	33	β Aquilæ	21.1	32.2	43.4	54.1	5.3	16.4	27.4	19 46 54.27										
	34	α^2 Capricorni	7.3	18.5	29.8	41.0	52.4	3.3	15.0	20 8 41.04										
	35	π Capricorni	6.5	18.0	29.5	41.3	53.0	4.4	15.8	20 17 41.21										
	36	Moon, 1st. L.	19.2	30.8	42.6	54.2	5.9	17.7	29.2	20 41 54.23										
	37	ι Capricorni	16.3	28.2	39.5	51.0	2.4	14.0	25.5	21 12 50.99										
	38	β Aquarii	4.0	15.2	26.4	37.4	48.5	59.2	10.1	21 22 37.26										
	39	ε Pegasi	14.0	25.1	36.2	47.0	58.2	9.5	20.7	21 35 47.24										
	40	Argelander's Z., 246.	32.2	43.2	56.2	8.1	19.5	31.5	43.2	21 51 7.70	299 41 58.4	60.9	62.9	65.2	61.85	III.	39.928	30.284	60.1	50.2
	41	Neptune		10.4	22.2	33.4	44.5	55.7	6.7	22 16 38.82	309 41 58.4	61.8	64.9	69.2	63.58	IV.	42.804	30.296	59.5	49.8
	42	α Piscis Australis	41.1	54.2	6.6	19.4	32.0	45.0	57.4	22 48 19.39										
	43	α Pegasi	42.0	53.4	5.0	16.4	27.5	39.0	50.0	22 56 16.19										
	44	β Leonis	46.8	58.2	9.4	21.0	32.3	43.4	55.0	11 40 20.87										
	45	γ Ursæ Majoris	53.7	12.6	31.4	50.5	9.2	28.2	46.8	11 44 50.31										
26	†46	δ Capricorni	8.5	20.2	30.9	43.2	54.6	6.2	17.5	21 37 43.01										
	†47	ι Aquarii	43.8	55.4	6.2	17.8	29.4	40.7	51.6	21 57 17.80										
	48	σ Aquarii	6.5	18.3	29.2	40.4	51.5	2.9	14.0	22 21 40.40										
	49	Moon, 1st L.	43.4	55.3	6.6	18.3	29.4	40.8	52.4	22 24 18.03										
	50	ζ Pegasi	24.0	35.3	46.0	57.4	8.5	19.9	30.8	22 32 57.41										
	51	λ Aquarii	12.2	23.4	34.4	45.3	56.4	7.8	19.0	22 43 45.50										
	†52	α Piscis Australis	41.0	54.0	6.4	19.2	32.2	44.4	57.0	22 48 19.17										

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Oct. 8, 20	s 50.411	l .017	— .326	— .021	— .258		21	40.165
15, 12	54.431	.033						
22, 20	61.170	.019						
23, 15	61.458	.012						
24, 21	61.728	.007						
12	61.700	.000						
26, 22	61.781	.002						
27, 20	61.939	.009				— 0.94		

1 rev. = 34.515″

No. for rel.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	− .64	+ 50.43					21 6 33.00	+ 29 37	+ 0.14						
2	.92	50.43	+ 25.99	+ 24.95	23 3 46.34		21 15 1.27	+ 61 57 25.29	− 1.56	− 16.62					
3	.58	50.43					21 23 38.99	− 6 14	+ 0.67	7.82					
4	17.13	50.44					21 26 45.06	+ 69 54	− 2.89			Oct.	24,	22.7	h.
5	0.59	50.44	+ 23.37	− 33.43	330 17 52.84	39.488	21 36 48.92	+ 9 11 32.09	+ 0.40	− 7.81	1.8	1.5	0.4	2.0	1.42
6	16.32	50.44	− 30.41	1 39.57	299 15 52.30		21 48 52.82	− 21 50 28.25			1.9	2.0	0.8	2.5	1.80
7	0.59	50.45	+ 11.80	− 1 10.12	309 47 3.13		22 18 27.33	− 11 19 17.62							
8	6.30	54.42					11 41 21.72	+ 15 25	2.55		1.85	1.75	0.60	2.25	1.61
9	.80	54.42					11 45 51.08	54 32	3.95						
10	.61	54.50					14 8 46.52	19 59	2.64			Mic.	40.365	−5	rdgs.
11	− .58	61.81						2 49	+ 1.36						
12	+ 10.39	61.38					13 5 2.34	88 30	− 59.79						
13	− .58											Oct.	27,	20.5	h.
14	.58										57.8	59.4	55.9	58.8	57.98
15	.58	61.16					19 17 54.88	2 49	+ 1.45		57.9	58.1	56.5	58.2	57.67
16	6.89	61.18					20 36 18.95	44 45	0.25		59.5	58.5	56.7	59.1	58.45
17	29.13	61.42					11 45 51.09	54 32	+ 3.77						
18											58.40	58.67	56.37	58.70	58.03
19	− .58	61.42					11 59 12.72								
20			− 1 18.09	+ 1 13.65	52 35 53.52							Mic.	40.455	−10	rdgs.
21			1 18.60	1 13.65	53.01										
22			1 18.55	1 13.62	53.03										
23	+ 10.41	61.43	1 18.46	1 13.61	53.11	40.412	13 6 2.83	88 30 28.03	− 59.52	+ 4.54					
24			1 18.94	1 13.59	52.61										
25			1 19.25	1 13.56	52.27										
26			1 18.76	1 13.55	52.75										
27			1 20.07	+ 1 13.54	51.43										
28	− .61	61.45					14 8 46.68	19 58	+ 2.61						
29	22.67	61.46					15 36 50.26	6 54	2.39						
30	.59	61.72					19 17 54.54	2 49	1 48						
31	.59	61.72					19 39 6.36	10 15	1.27						
32	.59	61.72					19 43 26.54	8 29	1.27						
33	.59	61.72					19 47 55.40	+ 6 2	1.27						
34	.59	61.72					20 9 42.17	− 13 0	1.39						
35	.59	61.72					20 18 42.34	18 42	1.41						
36	.60	61.73					20 43 59.79	16 9							
37	.59	61.73					21 12 52.13	17 28	1.08						
38	.58	61.73					21 23 38.41	− 6 14	0.89						
39	.59	61.73					21 36 48.38	+ 9 18	0.62						
40	.60	61.73	− 6 8.34	− 1 43.07	299 34 10.44	40.412	21 52 8.83	− 21 32 10.31	0.91						
41	6.19	61.74	+ 1 22.56	1 10.45	309 42 15.69		22 17 34.37	11 24 5.06							
42	.61	61.74					22 49 20.52	− 30 24	0.65						
43	.60	61.74					22 57 17.33	+ 14 24	0.17						
44	.60	61.70					11 41 21.97	15 25	2.37						
45	.80	61.70					11 45 51.21	+ 54 32	3.71						
46	.59	61.78					21 38 44.20	− 16 49	0.97						
47	.59	61.78					21 58 18.99	14 36	0.83						
48	.58	61.78					22 22 41.60	11 27	0.67						
49	.60	61.78					22 26 23.61	− 10 7							
50	.59	61.78					22 33 58.60	+ 10 3	0.36						
51	.58	61.78					22 44 46.20	− 8 23	0.53						
52	− .61	+ 61.78					22 49 20.34	− 30 25	+ 0.68						

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
13	Sun - -		1 5.65	
18	Venus -	− .41		6.06
36	Moon -	+ 1 4.43		
49	Moon -	+ 1 4.40		

5. Observed for dec. with fixed wire.
12, 46, 47. Unsteady.
12, 15, 16, 17, 20 to 27. Clouded.
19 + 0″ 29 applied for defective illumination.
20 to 27. Observed for dec. at 51*m.* 14*s.*, 54*m.* 24*s.*, 57*m.* 0*s.*, 59*m.* 0*s.*, 1*m.* 37*s.*, 4*m.* 10*s.*, 5*m.* 49*s.*, and 10*m.* 58*s.*
29. Very faint.
46 to 52. Blurred with mist rising off the Potomac.

DATE.	No.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE & MICROMETER. A.	B.	C	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire IV.	Revs.	In.	°	°
1849, Oct. 26	†1	α Pegasi	42.0	53.4	4.4	16.4	27.5	38.8	50.2	22 56 16.10										
	2	γ Cephei	54.9	43.8	31.8	19.0	7.6	55.4	43.0	23 32 19.36										
27	3	α Lyræ	6.6	20.9	34.8	48.6	3.0	16.6	30.9	18 30 48.77	359 46 41.8	38.9	39.4	46.4	41.62		38.549	30.232	63.0	65.1
	4	ζ Aquilæ	54.2	5.5	16.7	28.0	39.4	50.5	1.8	18 57 28.01	334 46 43.8	45.8	40.8	51.0	45.22	d	38.721	30.240	63.5	63.9
	5	δ Aquilæ	20.2	31.2	42.1	53.1	4.1	15.0	26.0	19 16 53.10	323 56 53.7	56.7	56.0	61.5	56.98		39.576	30.234	63.5	63.9
	6	γ Aquilæ	31.4	42.7	53.9	5.0	16.1	27.1	38.4	19 38 4.94	331 23 53.3	51.4	55.8	59.8	55.08		37.450	30.228	63.5	62.5
	7	α Aquilæ	51.8	3.0	14.0	25.0	36.3	47.4	58.4	19 42 25.13	329 36 2.5	3.0	0.8	7.5	3.45		39.815			62.2
	8	β Aquilæ	20.9	31.9	43.0	54.0	5.0	16.0	27.1	19 46 53.99	327 9 30.2	34.2	32.4	39.9	34.18		40.002	30.228	63.5	61.9
	9	α^2 Capricorni	7.1	8.2	29.2	40.4	52.3	3.4	14.6	20 8 40.74	308 5 52.0	54.0	55.9	61.4	55.83		42.840	30.228	63.5	61.1
	†10	α Cephei	49.4	12.6	36.1	59.3	22.8	46.2	9.3	21 13 59.39	23 2 55.3	52.4	53.0	58.7	54.85		41.208	30.236	63.2	56.4
	†11	β Cephei	--	39.2	11.8	43.2	15.4	47.0	19.0	21 25 59.27										
	12	ε Pegasi	13.6	25.0	36.0	47.0	58.3	9.3	20.4	21 35 47.09	330 17 56.8	59.8	58.8	62.7	59.53		41.250	30.228	63.0	56.7
	13	Neptune	52.4	3.8	15.0	26.2	37.4	48.4	59.7	22 16 26.13	309 41 56.8	57.2	61.0	63.7	59.68		41.861	30.226	62.0	53.9
	14	σ Aquarii	6.5	17.9	29.0	40.2	51.5	2.7	13.7	22 21 40.21							38.565	30.222	62.0	53.8
	15	ζ Pegasi	23.7	35.1	46.4	57.3	8.4	19.5	30.5	22 32 57.27	331 8 57.3	59.8	56.5	64.9	59.63		42.220	30.228	61.5	53.5
	16	λ Aquarii	11.8	23.2	34.2	45.2	56.4	7.3	18.3	22 43 45.20										
	†17	Moon, 1st and S. L.	21.0	32.3	43.4	54.8	6.3	17.3	28.4	23 15 54.79	314 3 31.9	35.3	34.3	41.9	35.85		40.129	30.230	61.5	51.9
	18	γ Cephei	54.5	43.0	30.9	18.4	6.6	54.8	43.0	23 32 18.74										
	†19	20 Piscium	--	--	1.4	12.3	23.5	34.4	45.0	23 39 23.32										
	†20	27 Piscium	25.0	36.2	47.1	57.5	9.0	19.9	30.9	23 49 57.94	316 45 0.4	3.4	5.4	8.8	4.50		38.595	30.230	59.0	50.8
30	21	β Aquarii	1.5	12.4	24.1	34.0	45.8	57.0	7.9	21 22 34.67										
	22	ε Pegasi	11.3	22.2	33.5	44.4	55.9	6.9	17.9	21 35 44.59										
Nov. 1	23	α Bootis	7.5	19.2	31.0	42.6	54.4	6.0	17.3	14 7 42.57										
2	†24	Sun, 1st L.	20.4	32.0	43.1	54.3	5.9	17.0	28.7	14 28 54.49										
	†25	Sun, 2d L.	34.4	46.0	57.0	8.7	20.0	31.3	43.0	14 31 8.63										
	†26	α Aquilæ	49.4	0.4	11.5	22.3	33.4	44.5	55.5	19 42 22.43										
	27	α Bootis	7.5	19.1	30.6	42.5	54.1	5.9	17.8	14 7 42.50										
3	†28	Sun, 1st L.	16.7	28.0	39.7	50.9	2.4	13.7	25.1	14 32 50.93										
	†29	Sun, 2d L.	30.9	42.4	54.0	5.4	16.4	28.0	39.2	14 35 5.19										
	†30	α Cephei	46.5	9.4	33.0	56.2	19.3	42.8	6.2	21 13 56.20										
	31	β Aquarii	1.0	12.3	23.4	34.4	45.3	56.3	7.4	21 22 34.30										
	32	ε Pegasi	10.9	22.0	33.0	44.2	55.4	6.5	17.3	21 35 44.19	330 17 51.0	53.3	51.0	58.7	53.50		41.445	30.092	60.0	60.8
	33	α Aquarii	--	--	48.8	59.7	10.8	21.4	32.6	21 56 10.66	320 2 58.7	63.6	61.9	69.8	63.50		42.815	30.094	60.0	59.5
	34	Neptune	37.9	49.2	0.3	11.8	22.7	33.9	45.0	22 16 11.54	309 41 56.5	58.4	60.8	65.9	60.40		40.018	30.096	60.0	58.5
	35	ζ Pegasi	20.9	32.0	43.0	54.4	5.3	16.4	27.5	22 32 54.21	331 8 55.8	57.1	53.8	61.7	57.10		42.291	30.096	60.0	57.5
	36	α Piscis Australis	37.9	50.4	3.2	16.0	29.0	41.4	54.1	22 48 16.00	290 41 60.9	59.5	63.3	66.3	62.50		43.487	30.092	60.0	57.3
	37	α Ursæ Majoris, S. P.	5.0	28.9	52.5	16.7	40.0	4.1	28.0	22 53 16.46										
4	†38	Polaris, S. P.	50.0	43.5	43.0	39.5	40.0	39.0	38.0	13 4 41.86										
5	39	Sun, 1st L.	11.4	22.7	34.4	45.5	56.7	8.4	19.0	14 40 45.44										
	40	Sun, 2d L.	25.9	37.5	49.0	0.3	11.9	23.5	34.9	14 43 0.43										
	41	β Ursæ Minoris	55.5	37.4	19.0	0.5	42.9	24.2	6.4	14 50 0.84										
	42	α Ophiuchi	17.4	28.6	39.9	51.0	2.4	13.5	25.0	17 26 51.11										
	43	Neptune	34.4	--	57.2	8.2	19.4	30.5	41.8	22 16 11.92	309 41 55.6	57.9	60.2	63.0	59.18		39.705	30.114	63.8	59.7
	44	ζ Pegasi	19.7	30.8	41.8	53.1	4.1	15.3	26.4	22 32 53.03	331 8 58.5	61.9	59.4	65.7	61.38		42.105	30.118	63.9	58.8
	45	α Piscis Australis	36.9	49.4	2.3	15.0	27.5	40.4	53.2	22 48 14.96	290 41 58.5	57.5	61.7	63.0	60.18		43.482	30.122		58.5
	46	α Pegasi	37.9	49.4	0.5	11.9	23.4	34.5	45.9	22 56 11.98	335 33 2.9	6.9	3.8	9.1	5.68		36.570	30.120	64.0	57.8
	47	α Andromedæ	56.2	8.7	21.0	33.5	46.0	58.4	10.9	23 59 33.53	349 24 1.4	3.0	2.5	7.1	3.50		37.492	30.120	63.0	55.9
	48	γ Pegasi	51.7	3.0	14.4	25.7	37.0	48.3	59.5	0 4 25.66										
	49	Saturn, 1st and S. L.	24.5	--	46.4	--	8.5	--	30.3	0 9 57.42	319 30 0.8	0.5	1.3	8.0	2.65		38.397	30.120	63.0	55.7
	50	Saturn, 2d and N. L.	--	36.5	--	58.8	--	20.5	--	0 9 58.60							38.928			
	†51	α Cassiopeiæ	59.5	18.5	38.5	57.6	17.3	36.5	55.9	0 30 57.69	16 47 60.8	59.4	60.7	66.3	61.80		42.073	30.120	63.0	55.2

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At.	
	h	s.	s.	s.	s.	s.	h.	revs.
Oct 27, 20	s 61.939	l .009	— .326	— .021	— .258			
30, 22	64.413	.016						
Nov. 2, 20	64.512	.008						
3, 22	64.754	.014						
5, 23	65.859	.029						
7, 21	67.490	.029						

1 rev. = 34″.515.

COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
.60	+ 61.78					22 57 17.28	+ 14 24	+ 0.19						
1.47	61.78					23 33 19.67	76 48	— 5.41						
0.68	61.93	— 1 3.82	— 0.25	359 45 37.55	40.398	18 31 50.02	38 39 16.80	+ 1.51	— 22.38					
.60	61.93	57.88	26.92	334 45 20.42	40.398	18 58 29.34	+ 13 38 59.67	1.53	16.33					
.58	61.93	28.37	41.57	323 55 47.04		19 17 54.36	2 49 26.29	1.53	12.35		Nov.	3,	23.3h	
.59	61.94	1 41.75	31.25	331 21 42.07		19 38 6.29	10 15 21.32	1.33	13.80	3.0	3.7	2.9	5.3	3.72
.59	61.94	20.12	33.61	329 35 9.72		19 43 26.48	8 28 48.97	1.33	13.01	3.9	3.4	2.9	4.7	3.73
.59	61.94	— 13.67	36.99	327 9 34.18		19 47 55.34	+ 6 2 22.77	1.33	12.20	3.9	3.7	2.8	5.4	3.95
.59	61.94	+ 1 24.29	— 1 13.01	308 6 7.11		20 9 42.09	— 13 0 13.64	+ 1.44	4.65	3.60	3.60	2.87	5.13	3.80
.92	61.95	27.96	+ 24.66	23 3 47.47		21 15 0.42	+ 61 57 26.72	— 0.75	19.19					
17.13	61.95					21 26 44.09		— 1.75			Mic	40.306	—10	rdgs.
.59	61.95	29.41	— 33.01	330 17 55.93		21 36 48.45	+ 9 11 35.18	+ 0.67	— 7.90					
.58	61.96	+ 50.50	1 9.74	309 41 40.44		22 17 27.51	— 11 24 40.31							
.58	61.96	— 1 3.27	1 10.05	309 39 46.37		22 22 41.59	— 11 26 34.38	0.68	+ 0.57					
.59	61.96	+ 1 2.89	32.07	331 9 30.45		22 33 58.64	+ 10 3 9.70	0.38	— 5.20					
.58	61.96					22 44 46.58	— 8 23	+ 0.54						
.60	61.97					23 18 0.87	— 6 7 35.49				Nov.	5,	23.5h	
1.47	61.97					23 33 19.24	+ 76 48	— 5.35		61.0	61.1	59.4	61.2	60.67
11.57	61.97					23 40 13.72	— 3 36	+ 0.25		61.8	61.4	59.7	61.3	61.05
.58	61.97	— 1 2.23	55.09	316 43 7.18		23 50 59.33	4 23 13.57	0.22	+ 1.56	61.4	61.1	59.3	61.1	60.73
.58	64.40					21 23 38.49	— 6 14	1.00						
.59	64.41					21 36 48.41	+ 9 11	0.73		61.40	61.20	59.47	61.20	60.82
.61	64.46					14 8 46.42	19 58	2.56						
.59	64.47										Mic.	40.369	—15	rdgs.
.59	64.47					14 31 5.44								
.59	64.51					19 43 26.35	8 28	1.44						
.61	64.64					14 8 46.53	19 58	+ 2.55						
.59	64.65					14 35 2.12								
.59	64.65													
.92	64.74					21 15 0.02	+ 61 57	— 0.46						
.58	64.74					21 23 38.46	— 6 14	+ 1.06						
.59	64.75	+ 35.52	32.61	330 17 56.41	40.416	21 36 48.35	+ 9 11 35.66	0.79	— 7.80					
11.55	64.75	+ 1 22.80	47.96	320 3 38.34		21 57 3.86	— 1 2 42.41	0.80	3.84					
.58	64.75	— 13.74	1 8.87	309 40 37.79		22 17 15.71	— 11 25 42.96							
.59	64.76	+ 1 4.72	31.69	331 9 30.13		22 33 58.38	+ 10 3 9.38	0.47	— 5.17					
.61	64.76	+ 1 46.00	2 30.90	290 41 17.60		22 49 20.15	— 30 25 3.15	0.81	+ 8.02					
.27	64.77					22 54 21.50	+ 62 33	+ 3.78						
10.40	65.57					13 5 57.83	88 30	— 57.01						
.59	65.62					14 42 57.96								
.59	65.62													
1.38	65.62					14 51 5.08	74 45	+ 6.31						
.60	65.70					17 27 56.21	+ 12 41	2.10						
4.30	65.84	— 23.75	1 8.74	309 40 26.69	40.393	22 17 13.46	— 11 25 54.06							
.59	65.84	+ 59.09	31.62	331 9 28.85		22 33 58.28	+ 10 3 8.10	0.48	— 5.21					
.61	65.85	+ 1 46.62	2 30.65	290 41 16.15		22 49 20.20	— 30 25 4.60	0.83	+ 8.20					
.60	65.86	— 2 11.95	26.21	335 30 27.52		22 57 17.19	+ 14 24 6.77	+ 0.31	— 5.24					
.63	65.89	1 40.13	10.84	349 22 12.53		23 59 38.79	28 15 51.78	— 0.21	4.66					
.60	65.89					0 5 30.95	+ 14 21	+ 0.02	1.74					
.58	65.89	1 8.89	48.69	319 28 5.07		0 11 3.32	— 1 38 6.53							
.58	65.89	— 50.56	48.71	319 28 23.38										
.82	+ 65.90	+ 57.99	— 17.49	16 49 17.30		0 32 2.81	+ 55 42 56.55	— 1.39	— 5.06					

Object.	COR. IN R. A.	Observed Semi-diam.	
	Semi-diam.	Hor.	Vertical.
	m. s.	m. s.	′ ″
oon	+ 1 4.77		
m		1 7.07	
m		1 7.13	
m		1 7.49	
turn		.59	9.15

10, 20, 24, 25, 28, 29, 30, 38, 51. Unsteady.
10, 20. Misty.
11. Observed for dec. at 26m. 5s.
21, 26. Through clouds.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THER'S. At.	THER'S. Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″			In.	°	°
	† 1	Polaris	54.0								49 36 5.2	1.5	2.2	6.4	3.84	IV.	40.000	30.114	62.3	54.9
	2																39.895			
	3			6.0													39.890			
	4																39.880			
	5				5.5												39.897			
	†6					4.5				1 5 6.14							39.857			
	7						10.5										39.882	30.110	62.0	55.8
	8																39.852			
	9							9.5									39.922			
	10																39.985			
	†11								13.0								40.035	30.110	61.5	54.6
	12	α Bootis	6.2	18.0	29.4	41.0	52.7	4.3	16.0	14 7 41.09										
7	13	α Aquilæ	46.2	57.3	8.4	19.4	30.5	41.5	52.4	19 42 19.39										
	14	β Aquilæ	15.3	26.3	37.2	48.2	59.4	10.3	21.3	19 46 48.29										
	15	α Capricorni	1.3	12.6	24.0	35.1	46.4	57.6	9.0	20 8 35.14										
	16	Neptune	31.1	42.4	53.7	5.0	16.4	27.4	38.5	22 16 4.93										
	17	ζ Pegasi	18.0	29.2	40.3	51.4	2.5	13.4	25.0	22 32 51.40										
12	18	α Cephei	41.8	5.7	28.4	51.9	15.4	38.6	1.8	21 13 51.94										
	19	β Aquarii	56.8	7.9	19.0	30.0	41.0	51.6	2.9	21 22 29.89										
	20	ε Pegasi	6.4	17.4	28.5	39.7	50.8	2.1	13.0	21 35 39.70										
	21	Lalande, (42700)	--	--	--	--	--	--	41.5	21 46 41.50										
	22	Neptune	27.7	39.0	50.0	1.2	12.2	24.3	35.2	22 26 1.37										
	23	ζ Pegasi	16.6	27.5	38.6	50.0	1.0	12.3	23.0	22 32 49.86										
	24	α Piscis Australis	33.1	46.0	58.9	11.4	24.1	36.8	49.7	22 48 11.43										
	25	α Pegasi	34.7	46.0	57.4	8.6	20.0	31.5	42.7	22 56 8.70										
	26	α Bootis	3.4	15.4	26.8	38.4	50.0	1.6	13.1	14 7 38.39										
13	†27	Sun, 1st L.	23.8	36.0	47.5	59.3	11.0	22.4	33.3	15 12 59.04										
	28	Sun, 2d L.	40.9	52.5	4.1	16.0	27.2	39.0	50.5	15 15 15.74										
	29	α Cygni	23.4	38.9	54.2	9.6	26.2	40.5	56.0	20 35 9.69	5 50 61.8	59.7	62.8	65.1	62.25		40.172	30.118	60.0	55.5
	30	61[1] Cygni	--	--	47.0	1.0	15.0	29.0	43.0	20 59 15.00	359 6 1.2	3.0	5.1	8.1	4.35		42.140			53.4
	31	62[2] Cygni	--	--	48.2	2.2	16.2	30.1	44.2	20 59 16.18										
	†32	ζ Cygni	45.9	58.5	11.0	23.6	36.3	49.0	1.5	21 5 23.69										
	†33	α Cephei	40.9	4.4	28.0	51.2	14.6	37.8	1.2	21 13 51.16										
	34	β Aquarii	56.6	7.4	18.5	29.4	40.4	51.9	2.8	21 22 29.57										
	35	β Cephei	--	30.8	3.0	34.8	6.6	38.8	10.4	21 25 50.73										
	36	ε Pegasi	6.3	17.1	28.4	39.6	50.7	2.0	12.9	21 35 39.57										
	37	Lalande, (42700)	--	--	--	--	--	--	41.0	21 46 41.00	299 39 1.7	6.4	6.7	6.5	5.32	I.	37.390	30.110	59.0	50.4
	38	Rumker, XXI, 163	11.7	23.0	35.0	47.0	58.8	10.4	22.4	21 48 46.90						IV.	43.320	30.110	59.0	50.4
	39	Argelander's Z., 246	24.5	36.4	48.0	0.0	12.0	23.7	35.5	21 51 0.01							34.210	30.110	59.0	50.4
	40	Argelander's Z., 237	--	--	--	--	--	1.4	14.0	21 55 7.70	298 39 1.9	2.4	7.0	8.4	4.92		37.475			
	41	Lalande, (43106)	44.6	56.4	8.2	20.5	32.0	43.8	55.7	21 58 20.17						V.	46.194	30.108	59.0	50.0
	42	ζ Pegasi	16.1	27.5	38.8	49.8	0.8	12.0	23.0	22 32 49.71										
	43	η Bootis	46.5	58.1	9.5	21.0	32.8	44.4	56.0	13 46 21.19										
	44	α Bootis	2.9	14.4	26.3	38.0	49.5	1.3	13.0	14 7 37.91										
14	45	α Bootis	3.0	14.4	26.2	37.9	49.5	1.0	12.9	14 7 37.84										
15	46	Sun, 1st L.	36.3	48.0	59.4	11.2	22.6	34.5	45.9	15 21 11.13										
	47	Sun, 2d L.	53.3	5.0	16.4	28.3	39.6	51.3	3.0	15 23 28.13										
19	48	α Lyræ	57.5	11.6	25.6	39.6	53.9	7.8	22.0	18 30 39.71										
	49	α Cephei	--	--	--	49.2	13.4	36.4	59.6	21 14 24.65										
	50	β Aquarii	54.7	6.0	17.2	28.1	39.2	50.1	1.4	21 22 28.10										
	51	β Cephei	--	29.5	1.1	33.1	5.2	37.0	8.5	21 25 49.07										
	52	ε Pegasi	4.8	15.9	27.0	38.1	49.0	0.2	11.4	21 35 38.06										

Date.	Clock.	Hourly rate.	VALUE OF. m.	n.	c.	Error of runs.	Mic. coin. At.	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Nov. 7, 21	s 67.490	l .029	— .326	— .021	— .258			
12, 22	69.056	.012						
13, 21	69.226	.011						
13, 14	69.560	.009						
15, 16	69.578	.009						
, 22	70.622	.010						

1 rev. = 34″515.

Nov. 7, 17h. Set up reversing apparatus, raised the instrument off the Y's, and cleaned the pivots, &c.

Nov. 12, 15h. Took down reversing apparatus.

COR. IN R.A.		COR. IN DEC.		Corrected Readings.	Mic. Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R.A.	DEC.	R.A.	DEC.	A.	B.	C.	D.	Mean.
m. s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
		— 18.14	+ 1 7.90	49 36 53.60										
		18.93	1 7.88	52.79										
		17.69	1 7.85	54.00										
		17.86	1 7.84	53.82										
		17.18	1 7.81	54.47										
— 11.06	+ 65.92	18.50	1 7.80	53.14		1 6 1.00	+ 88 30 32.71	— 56.85	— 0.73					
		17.76	1 7.78	53.86										
		19.45	1 7.93	52.32							Nov.	13,	17.h	
		18.02	1 7.83	53.65						60.1	60.4	60.3	61.0	60.45
		18.59	1 7.88	53.13						59.5	60.4	59.7	61.4	60.25
		— 18.49	1 7.93	53.28						59.80	60.40	60.00	61.20	60.35
.61	66.29					14 8 46.77	19 58	+ 2.52						
.59	67.45					19 43 26.25	8 29	1.50			Mic.	39.604	— 5	rdgs.
.59	67.45					19 47 55.15	+ 6 2	1.49						
.59	67.47					20 9 42.02	— 13 0	1.61						
.58	67.53					22 17 11.88								
.59	67.53					22 33 58.34	+ 10 3	+ 0.51			Nov.	13,	22.4h	
.92	69.05					21 15 0.07	+ 61 57	— 0.05		60.5	59.4	59.9	61.2	60.25
.58	69.05					21 23 38.36	— 6 14	+ 1.11		60.7	58.8	59.5	60.9	59.98
.59	69.05					21 36 48.16	+ 9 11	0.93		60.60	59.10	59.70	61.05	60.11
36.03	69.05					21 47 14.52	— 21 51	1.27						
.58	69.06					22 17 9.85					Mic.	39.645	— 5	rdgs.
.59	69.06					22 33 58.33	+ 10 3	0.60						
.61	69.06					22 49 19.88	— 30 25	0.96						
.61	69.07					22 57 17.17	+ 14 24	0.42						
.61	69.17					14 8 46.95	19.58	2.44			Nov.	19,	22.4h	
.59	69.17									61.0	59.4	60.4	60.0	60.20
.59	69.17					15 15 15.97				61.1	59.8	60.4	60.7	60.50
.71	69.22	+ 18.67	+ 5.93	5 51 26.95	39.614	20 36 18.20	44 45 6.20	0.85	19.03	60.8	59.7	60.4	60.1	60.25
14.59	69.23	+ 1 26.60	— 0.89	359 7 30.06		21 0 9.64	38 1 9.31	0.82	— 16.48	60.97	59.63	60.40	60.27	60 32
14.59	69.23					21 0 10.82								
.64	69.23					21 6 32.28	29 37	+ 0.86			Mic.	39.603	—10	rdgs.
.92	69.23					21 14 59.47	61 57	— 0.00						
.59	69.23					21 23 38.21	6 14	+ 1.21						
17.13	69.23					21 26 42.83	69 54	+ 0.71						
.59	69.23					21 36 48.21	+ 9 11	0.95						
36.03	69.23	—21 42.77	1 43.73	299 16 47.06	39.648	21 47 14.20	— 21 50 41.93	1.28	+ 3.98					
0.60	69.23	+ 2 6.74	1 42.08	299 39 29.98		21 49 55.53	21 26 50.77	1.25	3.95					
.60	69.24	— 3 7.69	1 42.46	299 34 15.17		21 52 8.65	21 32 5.58	1.24	4.08					
30.15	69.24	— 1 15.00	1 46.19	298 36 3.73		21 55 46.79	22 30 17.02	1.23	4.58					
— 0.60	+ 69.24	+ 9 38.93	— 1 45.50	298 46 58.35		21 59 28.79	— 22 19 22.40	1.20	4.67					
.59	69.24					22 33 58.36	+ 10 3	0.61						
.61	69.56					13 47 30.14	19 9	2.40						
.61	69.56					14 8 46.86	19 58	2.43						
.61	69.56					14 8 46.82	19 58	2.42						
.59	69.57					15 23 28.61								
.59	69.57													
.67	70.58					18 31 49.62	38 39	1.93						
35.89	70.61					21 14 59.37	+ 61 57	0.23						
.58	70.61					21 23 38.13	— 6 14	+ 1.28						
17.13	70.62					21 26 42.56	+ 69 54	— 0.36						
— .59	+ 70.62					21 36 48.09	+ 9 11	+ 1.01						

Object.	COR. IN R. A.	Observed Semi-diam.	
	Semi-diam.	Hor.	Vertical.
	m. s.	m. s.	′ ″
Sun - -	- - - -	1 8.35	
Sun - -	- - - -	1 8.50	

1 to 11. Observed for dec. at 55m. 24s., 59m. 0s., 2m. 18s., 3m. 4s., 3m. 46s., 4m. 34s., 6m. 28s., 8m. 47s., 10m. 46s., 14m. 17s., 15m. 51s.

27, 32, 33. Unsteady.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
1849. Nov. 19	†1	Anonymous - - -	26.2	38.0	49.2	1.3	13.0	25.2	36.3	21 47 1.31	299 39 0.4	1.8	6.5	5.7	3.60	IV.	40 490	29.734		53.1
	†2	Rumker XXI, 163 -	10.0	22.0	33.3	45.1	57.0	9.0	20.7	21 48 45.31	299 39 0.4	1.8	6.5	5.7	3.60		43.075	29.732	58.0	52.7
	†3	ζ Pegasi - - - -	15.0	26.0	37.2	48.4	59.4	10.5	21.0	22 32 48.21										
	†4	α Piscis Australis - -	32.0	44.8	57.5	10.0	22.9	35.7	48.1	22 48 10.14										
	5	α Pegasi - - - -	33.0	44.2	55.7	6.9	18.6	29.4	41.0	22 56 6.97										
	6	γ Cephei - - - -		32.0	20.0	7.1	56.7	43.4	32.0	23 32 31.87										
	† 7	α Cassiopeiæ - - -	54.3	14.4	33.5	53.0	12.2	31.4	51.3	0 30 52.87										
	† 8	Polaris - - - -	44.0								49 35 64.2	58.0	61.4	63.6	61.80		39.716	29.732	53.2	46.8
	9			48.0													39.575			
	10																39.481			
	11				51.0												39.454			
	†12					51.0				1 4 51.29							39.453	29.734	53.2	46.3
	†13						55.0										39.479			
	14							54.0									39.521			
	†15								56.0								39.639	29.734	53.2	45.6
	†16	Polaris, S. P. -							25.5		52 32 63.8	56.4	62.7	62.3	61.30		41.980	29.780		51.2
	17							27.0							61.46		42.010			
	18						28.5								61.63		42.067	29.781	55.8	51.8
	19														61.80		42.072			
	20					30.0				13 4 31.79					61.96		42.075			
	21														62.12		42.065	29.782		52.2
	22				34.0										62.29		42.045			52.8
	23			35.5											62.46		42.010			
	†24		42.0									64.4	58.8	62.5	64.8	62.62		41.999	29.780	55.4	52.8
	25	η Ursæ Majoris - -	33.1	50.2	7.0	24.4	41.2	58.4	15.5	13 40 24.26	11 8 60.0	54.5	58.2	61.9	58.65		41.524	29.782	55.4	54.4
	26	η Bootis - - - - -	45.1	56.9	8.3	20.0	31.5	43.3	55.0	13 46 20.01	340 15 2.2	4.2	6.7	9.4	5.62		41.285	29.782	55.0	54.8
	†27	Venus, 2d L. & S. L.	36.2	47.2	58.8	10.0	21.2	32.4	43.5	14 7 9.90	309 50 61.0	59.4	65.0	64.4	62.45		37.865	29.790	56.0	55.6
	†28	Venus, 2d L. & N. L.															38.246			
20	†29	Sun, 1st & N. L. -	21.4	33.4	44.8	56.5	8.4	19.9	31.3	15 41 56.53	301 21 0.0	0.8	8.5	8.5	4.45	VI	40 172	29.784	57.8	58.4
	30	Sun, 2d & S. L. - -	39.9	51.3	3.2	15.0	26.4	38.3	49.9	15 44 14.86	301 21 1.9	3.9	0.9	11.2	4.47	II.	34.635	29.782	57.8	58.6
21	31	α Andromedæ - - -	50.8	2.9	15.3	27.7	40.3	52.5	5.3	23 59 27.83										
	32	γ Pegasi - - - - -	46.3	57.2	8.5	20.2	31.4	42.7	54.0	0 4 20.04										
	33	α Cassiopeiæ - - -	53.0	13.0	31.9	52.0	11.2	30.2	50.5	0 30 51.69										
28	34	α Andromedæ - - -	46.0	58.2	11.0	23.0	35.8	48.1	0.3	23 59 23.20										
	35	γ Pegasi - - - - -	41.7	53.1	4.4	15.8	27.2	38.1	49.6	0 4 15.70										
	36	α Cassiopeiæ - - -	48.2	7.0	26.9	46.2	6.2	25.0	44.4	0 30 46.27										
	37	Polaris - - - -	53.0	54.0	50.0	54.5	56.5	0.5	8.5	1 3 56.71										
30	38	α Andromedæ - - -	45.6	58.0	11.3	23.2	35.3	47.9	0.4	23 59 23.06										
	39	γ Pegasi - - - -	41.2	53.0	3.8	15.2	26.3	38.2	49.3	0 4 15.29										
Dec. 5	40	α Lyræ - - - - -			18.3	32.4	46.3	0.8	14.7	18 30 46.50										
	41	α Aquilæ - - - - -	36.3	47.2	58.3	9.4	20.7	31.5	43.0	19 42 9.49										
	42	ε Pegasi - - - -	58.0	9.1	20.1	31.0	42.5	53.5	4.6	21 35 31.26										
	†43	α Gruis - - - - -	38.3	54.7	10.9	26.9	43.7	0.0	16.0	21 57 27.21										
	44	α Piscis Australis - -	25.3	38.1	50.9	3.8	16.2	29.1	41.8	22 48 3.60										
	†45	α Andromedæ - - -	44.1	56.9	9.0	21.4	33.8	46.3	59.0	23 59 21.50										
	46	Saturn, 1st L. - -		40.4		2.0		24.0		0 7 2.13										
	47	Saturn, 2d L. - -			52.2		14.2		36.4	0 7 14.27										
	†48	α Cassiopeiæ - - -	46.2	5.7	25.1	44.1	3.8	23.2	42.8	0 30 44.41										
	†49		50.0								310 23 58.7	62.0	58.5	61.0	60.05	IV.	39.428	29.824	46.5	39.5
	50			49.0											60.18		39.524			
	†51				52.0										60.31		39.585			

Date.	Clock.	Hourly rate.	VALUE OF. m.	n.	c.	Error of runs.	Mic. coin. At.	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Nov. 19, 22	s 70.622	l .010	— .326	— .021	— .258			
19, 14	70.853	.010						
21, 0	71.548	.010	.590	+ .292	— .258			
28, 0	75.255	.009	4.15	.877	+ .012			
30, 0	75.440	.009						
31	76.662	.013	— .250	+ 7.72	+ .217			

1 rev. = 34″.515.

Nov. 21. Professor Hubbard put up reversing apparatus, took down the pillars supporting the small counterpoise, reversed the instrument, placed the counterpoise of the alidade on the west pier, and made observations with the striding level and collimating eye-piece for errors of level and collimation, and for difference of pivots.

Nov. 28 to Dec. 31. Observations made with circle west.

COR. IN R. A.		COR. IN DEC.		Corrected readings.	Mic. Zero.	OBSERVED.		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R.A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
− 0.59	+ 70.62	+ 30.53	− 1 40.45	299 27 53.68	39.612	21 48 11.34	+ 21 28 27.07	+ 1.34	+ 4.28					
.59	70.62	1 59.76	− 1 40.35	299 39 23.01	39.612	21 49 55.33	− 21 26 57.74	1.32	4.35		Nov.	19.	14h.5	
.59	70.63					22 33 58.25	+ 10 3	0.67		1.4	0 6	0.5	0.8	0.82
.64	70.63					22 49 20.13	− 30 25	1.04		0.8	0.8	0.2	1.7	0.88
.60	70.63					22 57 17.00	+ 14 24	+ 0.49						
24.95	70.64					23 33 17 56	76 48	− 3.76		1.16	0.70	0.35	1.25	0.85
.82	70.65					0 32 2.72	55 43	1.17						
											Mic.	39.584	−10	rdgs.
		− 5.93	+ 1 8.21	49 37 4.08										
		6.68	1 8.21	3.33										
		6.82	1 8.22	3.20										
		5.98	1 8.24	4.06										
− 11.06	70.65	5.49	1 8.24	4.55		1 5 50.83	88 30 43.38	51.56	− 5.39					
		5.49	1 8.27	4.58										
		6.08	1 8.29	4.01										
		− 4.92	1 8.34	5.22										
											Dec.	5,	22h.7	
		+ 1 24.35	1 15.13	52 34 40.78						61.6	64.0	55.6	59.1	60.07
		1 24.40	1 15.12	40.98						61.9	63.6	55.5	58.2	59.80
		1 25.62	1 15.11	42 36						61.8	64.2	55.7	59.5	60.30
		1 25.38	1 15.09	42.27										
+ 10.41	70.84	1 25.20	1 15.07	42.23	39.609	13 5 53.04	88 30 38.97	− 51.29	5.54	61.77	63.93	55.60	58.93	60.06
		1 24.78	1 15.04	41.94										
		1 24.23	1 15.00	41.52										
		1 24.06	1 14.97	41.49										
		1 24.87	1 14.94	42.43										
											Mic.	39.262	−10	rdgs.
− .75	70.85	1 6.11	+ 11.32	11 10 16.08		13 41 34.36	50 3 55.33	+ 3.05	3.32					
.61	70.85	+ 57.17	− 20.55	340 15 42.24		13 47 30.25	+ 19 9 21.49	+ 2.26	− 9.90					
		− 1 0.19	1 4.08	309 48 58.18		14 8 19.78	− 11 17 15.95							
.59	70.85	− 0 47.04	1 3.95	309 49 11.46										
.59	70.86	+ 14 51.19	1 24.79	301 34 30.85		15 44 15.97	− 19 47 59.14							
.59	70.86	− 17 25.39	1 26.70	301 2 12.35										
.71	71.55					0 0 38.67	+ 28 16	− 0.04						
.84	71.55					0 5 30.75	14 21	+ 0.16						
− .62	71.55					0 32 2.62	55 43	− 1.13						
+ .07	75.26					0 0 38.53	28 16	+ 0.07						
− .18	75.26					0 5 30.78	14 21	+ 0.25						
+ .89	75.26					0 32 2.42	55 43	− 0.97						
33.81	75.26					1 5 45.78	88 31	− 46.75						
+ .07	75.44					0 0 38.57	28 16	+ 0.09						
− .18	75.44					0 5 30.55	14 21	0.27						
13.65	76.63					18 31 49.48	38 39	2.08						
.11	76.65					19 43 26.03	8 29	1.79						
.10	76.67					21 36 47.83	+ 9 11	1.21						
1.01	76.67					21 58 42.87	− 47 41	2.09						
− .57	76.68					22 49 19.71	− 20 25	1.29						
+ .18	76.70					0 0 38.38	+ 28 16	+ 0.14						
− .04	76.70													
− 11.01	76.70					0 8 19.38								
+ 1.12	+ 76.71					0 32 2.24	+ 55 43	− .83						
		+ 11.85	1 9.43	310 23 2.47	39.263									
		11.80	1 9.46	2.52										
		+ 11.90	− 1 9.48	2.73										

Object	COR. IN R.A	Observed semi-diam.	
	Semi-diam.	Hor.	Vert.
	m. s.	m. s.	′ ″
Venus -	− .38	- - - -	6.64
Sun - -	- - - -	1 9.16	16 9.24
Saturn -	- - - -	.59	

1. Observed for dec. at 47m. 40s.
2. Observed for dec. at 48m. 24s.
3, 7, 27, 29, 30, 45, 46. Very unsteady.
4, 16 to 24 A little unsteady.
8 to 15. Observed for dec. at 51m. 2s., 54m. 23s., 57m. 58s., 1m. 28s., 4m 59s., 8m. 55s., 12m. 5s., and 15m. 25s.
13 to 15. Very faint; through thin cloud.
16 to 24. Observed for dec. at 57m. 51s., 59m 52s., 2m. 57s., 4m. 15s., 6m. 0s, 7m. 24s, 8m. 37s., 10m. 10s., and 11m. 43s.
17 to 23, 50, 51. Circle readings interpolated.
28. + 0″.12 applied for defective illumination.
43 to 51. Blurred, distended.
49 to 51. Observed for dec. at 53m. 27s., 57m. 3s., 0m. 29s.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Dec. 5	1	Polaris				56.0				1 3 55.14					60.45	IV.	39 544	29.822	46.4	38.8
	2						57.0								60.58		39.537			
	†3							58.0							60.72		39.507			
	†4								4.0		59.0	62.3	59.3	62.8	60.85		39.395	29.821	46.0	38.2
7	†5	α Lyræ	49.2	3.2	17.3	31.1	45.3	59.5	13.5	18 30 31.30										
	6	α Aquilæ	35.5	46.4	57.5	8.2	19.7	30.8	41.8	19 42 8.56										
	7	α Gruis	37.5	53.7	9.8	26.2	42.3	59.0	15.0	21 57 26.21										
	†8	α Piscis Australis	24.4	37.0	50.0	2.7	15.4	28.0	41.0	22 48 2.64										
	†9	Polaris	46.0	48.0	52.0	55.0	59.0	60.0	63.5	1 3 54.79										
	10	θ^1 Ceti	40.7	51.4	2.8	14.0	25.0	35.9	47.4	1 15 13.89										
11	11	ζ Pegasi	--	--	26.5	37.6	48.6	0.0	11.0	22 32 48.74										
	12	α Piscis Australis	21.8	34.4	47.2	59.9	12.4	25.4	38.0	22 47 59.87										
	13	α Pegasi	22.4	33.3	45.0	56.0	7.2	19.0	30.7	22 55 56.23										
	14	α Andromedæ	40.0	52.0	5.3	17.9	30.0	43.0	55.0	23 59 17.60										
	†15	Polaris	44.0	46.0	45.5	52.0	51.5	55.0	59.0	1 3 50.43										
	16	α Tauri	24.9	36.2	47.4	59.1	10.4	21.7	33.4	4 25 59.01	22 41 58.0	52.4	50.1	55.7	54.05		38.028	30.536	30.3	24.1
	†17	β Tauri	51.0	3.7	16.0	28.6	40.9	53.7	6.1	5 15 28.57	10 26 61.2	59.2	54.4	60.9	58.95		35.978	30.536	31.1	23.5
	18	α Columbæ	14.3	27.5	40.7	54.0	7.0	20.1	33.9	5 32 53.93										
	19	α Orionis	10.0	21.0	31.9	43.0	54.0	5.2	16.1	5 45 43.03										
	20	Mars, 1st and N. L.	16.1	28.0	40.2	53.2	5.4	17.5	29.7	5 52 52.87	12 32 62.5	58.0	58.2	62.4	60.27		43.328	30.536	29.4	22.8
17	21	α Piscis Australis	14.8	27.5	40.0	53.0	5.5	18.3	31.0	22 47 52.87										
	22	α Pegasi	15.6	26.8	38.1	49.4	0.8	12.0	23.4	22 55 49.44										
	23	γ Cephei	21.0	8.7	56.8	41.7	32.5	20.4	9.0	23 31 44.73										
	24	α Andromedæ	33.0	45.8	58.2	10.9	23.2	35.7	48.2	23 59 10.71										
	25	γ Pegasi	29.5	40.8	52.0	3.5	14.6	25.7	37.5	0 4 3.37										
	26	Saturn, 1st L.	50.2	--	12.0	--	34.2	--	56.1	0 7 23.13										
	27	Saturn, 2d L.	--	2.4	--	24.1	--	46.2	--	0 7 24.23										
	28	Polaris	27.0	29.0	32.5	38.0	--	--	--	0 53 1.63										
	29	α Aurigæ	22.4	38.2	54.0	9.7	26.0	41.3	57.3	5 4 9.84										
	†30	Mars, 1st and N. L.	39.2	51.2	3.0	15.2	27.0	40.2	52.4	5 42 15.46	12 23 60.4	57.8	56.7	60.6	58.87		43.022	30.304	41.6	32.8
18	31	α Lyræ	39.0	53.1	6.9	21.1	35.1	49.1	3.4	18 30 21.10										
	32	α Cygni	3.0	18.3	33.5	49.2	4.4	20.1	35.2	20 36 49.10										
21	33	ι Piscium	9.4	20.5	31.5	42.7	53.8	4.5	15.8	23 31 42.60										
	34	α Andromedæ	29.8	42.4	54.6	7.2	19.8	32.0	44.5	0 1 7.19										
	35	γ Pegasi	25.4	37.0	48.4	59.8	11.0	22.4	33.5	0 5 59.64										
	36	Saturn, 1st L.	9.9	--	31.7	--	53.5	--	15.6	0 8 42.68										
	37	Saturn, 2d L.	--	21.7	--	43.7	--	5.8	--	0 8 43.73										
24	†38	γ Pegasi	24.3	35.0	46.6	58.3	9.0	20.5	30.9	0 5 57.80										
	†39	α Cassiopeiæ	30.0	49.1	8.9	28.2	47.9	7.1	26.8	0 32 28.29										
	40	Polaris	18.0	20.0	21.5	26.0	26.0	29.5	--	1 1 53.50										
	41	θ^1 Ceti	25.7	36.4	48.0	59.1	10.3	21.2	32.3	1 16 59.00										
	42	μ Piscium	14.4	25.3	36.3	47.4	58.3	9.2	20.1	1 21 47.29										
	43	ν Piscium	32.4	43.4	54.3	5.4	16.3	27.2	38.4	1 34 5.34										
	†44	Moon, 1st and S. L.	54.0	5.4	16.5	27.7	39.3	50.4	1.9	1 58 27.89										
	†45	ξ^2 Ceti	--	--	28.0	39.0	49.9	1.0	12.3	2 21 50.04										
27	46	γ Cephei	13.0	0.7	48.5	36.9	25.0	12.8	0.8	23 32 36.81										
	47	α Andromedæ	26.5	39.3	51.4	3.5	16.3	28.5	41.1	0 1 3.80	10 38 58.8	54.7	53.0	58.1	56.15		37.467	30.226	40.4	36.9
	†48		16.0								310 23 53.8	57.8	56.3	59.3	56.80		39.785	30.234	39.5	33.8
	49																39.836			
	50			17.0													39.848			
	51				19.0												39.880			
	†52	Polaris				23.0				1 4 22.64							39.910	30.236		33.8

Date.	Clock.	Hourly Rate.	VALUE OF m.	n.	c.	Error of Runs.	Mic. Coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Dec. 5, 21	s 76.662	l .013	— .250	+ .672	+ .217			
7, 22	77.431	.014	.148	.546	.217			
11, 23	80.135	.048						
17, 0	87.033	.037	— .206	+ .610	+ .217			
18, 20	87.739	.036						
21, 24	30.636	.031						
24, 1	32.449	.022						
27, 4	33.887	.023						

1 rev. = 34″.515.

Dec. 18, 19*h.* 15*m.* Set the clock forward one minute.

44. Transit recorded 1*h.* 59*m.*, &c.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED. R. A.	OBSERVED. DEC.	REDUCTION TO 1850.0. R. A.	REDUCTION TO 1850.0. DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	+ 33.99	+ 76.71	+ 9.70	− 1 9.53	0.62		1 5 45.84	+ 88 30 37.50	− 42.51	− 9.88					
2			9.85	1 9.54	0.89							Dec.	11.	22.5h.	
3			10.68	1 9.58	1.82						62.0	64.5	56.4	59.1	60.50
4			9.97	1 9.61	1.21						63.0	65.0	58.4	60.4	61.70
5	.57	77.38					18 31 49.25	38 39	+ 2.10						
6	+ .16	77.40					19 43 26.12	+ 8 29	1.81		62.50	64.75	57.40	59.75	61.10
7	− .56	77.43					21 58 43.08	− 47 41	2.14			Mic.	39.338	—10	rdgs.
8	− .22	77.44					22 49 19.86	− 30 25	+ 1.33						
9	+ 29.24	77.46					1 5 41.49	+ 88 31	− 41.06						
10	− .02	77.47					1 16 31.34	− 8 58	+ 0.16			Dec.	11.	4.8h.	
11	10.95	80.11					22 33 57.90	+ 10 3	0.98		64.5	67.4	59.4	61.5	63.20
12	− .23	80.12					22 49 19.77	− 30 25	1.40		66.6	68.9	60.9	62.4	64.70
13	+ .22	80.13					22 57 16.58	+ 14 24	0.80						
14	.39	80.18					0 0 38.17	28 16	+ 0.25		65.55	68.15	60.15	61.95	63.95
15	29.24	80.18					1 5 39.85	88 31	− 38.49						
16	.24	80.40	26.17	43.96	22 41 36.26	39.302	4 27 19.65	16 12 2.99	0.55	+ 6.94		Mic.	39.187	—10	rdgs.
17	+ .40	80.43	11.53	− 1 54.72	10 25 15.76		5 16 49.40	+ 28 28 23.49	0.63	+ 7.62					
18	− .26	80.45					5 34 14.12	− 34 9	1.03			Dec.	17.	4.3h.	
19	+ .14	80 46					5 47 3.63	+ 7 22	− 0.53		58.5	61.2	58.1	59.8	59.40
20	+ .34	80.46	2 18.96	+ 18.17	12 35 37.40		5 54 14.23	+ 26 18 1.85			58.2	61.3	57.5	60.1	59.72
21	− .32	86.99					22 49 19.54	− 30 25	+ 1.46						
22	+ .18	86.99					22 57 16.61	+ 14 24	0.85		58.35	61.2	57.80	59.95	59.34
23	3.35	87.01					23 33 15.09								
24	.37	87.00					0 0 38.08	28 16	0.31			Mic.	39.717	—10	rdgs.
25	+ .18	87.03					0 5 30.58	14 21	0.45						
26	− .02	87.03					0 8 50.70					Dec.	27.	0.5h.	
27	+ .06	87.03									59.5	63.8	59.7	62.8	61.45
28	11 5.78	87.07					1 5 34.48	88 31	− 34.34		60.5	64.0	60.0	62.2	61.68
29	.75	87.22					5 5 37.81	45 50	− 1.03						
30	.34	87.24	1 54.37	+ 17.92		39.702	5 43 43.61	26 27 27.73			60.0	63.90	59.85	62.50	61.56
31	.57	87.69					18 31 49.36	38 39	+ 2.11						
32	.71	87.76					20 36 17.57	44 45	1.55			Mic	39.582	− 5	rdgs.
33	.07	30.62					20 32 13.29	4 49	0.80						
34	.37	30.64					0 0 38.26	28 16	0.38						
35	+ .18	30.64					0 5 30.46	14 21	0.51						
36	− .02	30.64					0 9 13.84								
37	.00	30.64													
38	+ .18	32.43					0 5 30.41	14 21	+ 0.56						
39	1.09	32.44					0 32 1.82	55 43	− 0.30						
40	+ 4 3.50	32.45					1 5 29.45	+ 88 31	− 28.70						
41	− .09	32.45					1 16 31.36	− 8 58	− 0.21						
42	+ .07	32.46					1 22 19.82	+ 5 22	+ 0.21						
43	.06	32.46					1 33 37.86	4 43	+ 0.15						
44	+ .09	32.47					2 0 7.23								
45	− 10.96	32.48					2 20 11.56	7 47	− 0.11						
46	+ 3.35	33.78					23 33 13.94	76 48	+ 4.44						
47	.37	33.80	11.32	1 14.55	10 37 52 92	39.627	0 0 37.97	28 15 46.33	+ 0.48	− 4.79					
48			7.55	1 11.23	310 22 53 12										
49			7.76	1 11.23	53.33										
50			7.81	1 11.23	53.38										
51			8.71	1 11.24	54.27										
52	+ 31 62	+ 33.80	+ 9.75	+ 1 11.24	55.31		1 5 28.06	+ 88 30 44.63	− 26.61	− 13.80					

No.	Object.	COR. IN R. A. Semi-diam.	Observed semi-diam. Hor.	Observed semi-diam. Vert.
		m. s.	m. s.	′ ″
20	Mars -	+ .56		
26	Saturn -		.56	
30	Mars -	+ .57		
36	Saturn -		.54	
44	Moon -	+ 1 6.78		

1 to 4. Blurred, distended. Observed for declination at 4m. 2s., 7m. 20s., 11m. 6s., and 14m. 46s.
1 to 3. Circle readings interpolated.
5, 9, 15, 17, 30, 38, 39. Very unsteady.
8. Observed with full aperture; too bright; observation not very good.
45. Through a passing cloud
48 to 52. Observed for declination at 58m. 28s., 1m. 37s., 3m. 0s., 4m. 14s., and 5m. 25s.

DATE.	No. for ref	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean	Mic. Wire	Mic. Revs.	Barometer.	THER At	E
1849.			s.	s.	s.	s.	s.	s.	s	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Dec. 7	†1						25.0					53.8	57.8	56.3	59.3	56.80	IV.	39.919		
	2							26.5										39.898		
	3																	39.850		
	†4								32.0									39.848	30.420	32.
	5	Anonymous . .	33.5	44.7	55.7	7.7	17.2	28.7	40.0	2 47 6.69	30 57 4.3	2.5	1.5	3.7	3.00		42.228	30.260	36.0	29.
	†6	α Persei	14.2	31.0	47.5	4.4	22.0	38.6	55.0	3 13 4.67	349 36 4.4	4.9	1.6	4.2	3.78		36.987	30.270	35.0	28.
	7	γ^2 Eridani	54.7	6.1	17.3	28.6	40.0	51.2	2.9	3 51 28.69										
	†8	γ Tauri	8.0	19.6	30.5	42.2	53.4	4.8	16.1	4 11 42.09	23 38 60.8	57.0	54.8	59.0	57.90		37.265	30.278	35.5	27.
	†9	α Tauri	11.4	23.0	34.0	45.3	56.8	8.4	19.7	4 27 45.51	22 41 62.0	61.8	57.0	63.4	61.05		37.978	30.284	35.0	27.
	10	ι Tauri	59.4	11.3	22.5	35.0	46.5	57.8	10.0	4 54 34.61	17 32 65.9	62.4	59.5	63.9	62.92		36.325	30.290	34.8	28.
	†11	Moon, 1st and S. L.	48.4	0.2	12.4	24.1	35.8	7.5	59.3	4 59 23.96	21 49 24.0	21.4	19.3	22.1	21.70		40.030	30.292	34.8	28.
	12	β Tauri	37.8	50.2	2.7	15.3	27.7	0.1	52.7	5 16 15.21										
	†13	Mars, 1st L. . .	--	11.3	24.0	36.3	48.0	0.4	13.3	5 27 42.22										
	14	α Orionis	56.7	7.6	18.8	29.9	40.7	51.8	3.0	5 47 29.79										
31	15	α Ceti	17.1	28.3	39.1	50.2	1.0	11.9	23.7	2 54 50.19										
	16	α Persei	11.2	28.2	45.1	2.1	18.2	35.0	52.0	3 14 1.69										
	17	η Tauri	22.3	34.4	46.4	58.5	10.0	21.8	34.2	3 38 58.23										
	18	γ^1 Eridani	52.0	3.4	14.8	25.9	37.4	48.5	59.9	3 51 25.99										

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. Coin. At	
h	s.	s.	s.	s.	s.	″	h.	revs.
Dec. 27, 4	s 33.887	l .023	— .206	+ .610	+ .217	— 0.83		
31, 3	36.564	.028						

1 rev. = 34″.515.

11. Transit recorded 5h. 0m., &c.

No. for rel.	COR. IN R A. Inst.	COR. IN R A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1			+ 10.31	− 1 11 23	55.88										
2			10.11	1 11.37	55.68										
3			9.11	1 11.37	54.54										
4			10.63	− 1 11.38	56.05										
5	+ .09	+ 33.86	+ 1 29.77	+ 36.79	30 59 9.56	39.627	2 47 40.64	+ 7 54 29.69	− 0.22	+ 7.13		Dec.	27.	3.5h.	
6	+ .85	33.87	− 1 31.12	− 11.31	349 34 21.34		3 13 39.39	+ 49 19 17.90	0.98	− 0.68	60.9	63.7	58.8	62.2	61.40
7	− .13	33.88					3 51 2 44	− 13 57	0.46		60.0	63.9	59.2	62.8	61.48
8	+ .19	33.89	1 21.52	+ 26.96	23 38 3.34		4 11 16.17	+ 15 15 35.91	0.56	+ 7.14	60.45	63.80	59.00	62.50	61.44
9	.18	33.90	56.92	25.78	22 41 29 91		4 27 19.59	16 12 9.34	0.61	7.30					
10	.27	33.91	− 1 53.97	+ 19.44	17 31 28.39		4 54 8.79	21 22 10.86	0.69	+ 7.09		Mic.	39.585	− 5	rdgs.
11	.22	33.91	+ 15.01	−38 29.00	20 56 7.70		5 1 11.26	17 57 31.55							
12	+ .38	33.92					5 16 49.51	28 28	0.77						
13	− 5.77	33.92					5 27 10.92								
14	+ .09	33.93					5 47 3.81	7 22	0.70						
15	.05	36.56					2 54 26.80	3 30	0.21						
16	.85	36.57					3 13 39.11	49.19	0.95						
17	+ .30	36.58					3 38 35.11	+ 23 38	0.54						
18	− .13	+ 36.59					3 51 2.45	− 13.57	− 0.46						

No.	Object.	COR. IN R A Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
11	Moon .	+ 1 13.17		
13	Mars .	+ .55		

1 to 4. Observed for declination at 7m. 1s., 8m. 46s., 10m. 10s, and 12m. 34s.
6, 8, 9, 11, 13 to 18. Very unsteady.
11. Observed for declination at 1m. 57s.

OBSERVATIONS

WITH

THE MERIDIAN CIRCLE,

1850.

NATIONAL OBSERVATORY.

DATE.	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER A.	B.	C.	D.	Mean.	Mic.	Barometer.	THER'S. At	Ex.
1850.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire IV. / Revs.	In.	°	°
Jan. 4	1	α Lyræ - - - -	25.6	39.7	53.5	7.7	21.9	35.8	50.0	18 32 7.89									
5	†2	Sun, 1st L. - -	5.2	16.7	29.0	40.8	52.7	4.8	16.3	19 4 40.79									
	†3	Sun, 2d L. - -	26.3	48.2	50.1	2.3	14.2	26.2	38.0	19 7 2.19									
	4	α Andromedæ - -	19.0	31.1	43.7	56.2	8.8	21.0	33.8	0 0 56.23									
	5	γ Pegasi - - - -	14.8	26.4	37.2	48.7	0.0	11.6	22.9	0 5 48.80									
	†6	α Tauri - - - -	3.9	15.0	26.7	38.1	49.3	0.8	12.4	4 27 38.03									
9	7	α Persei - - - -	6.20	22.64	39.65	56.65	13.09	30.22	46.95	3 12 56.49									
	8	γ Tauri - - - -		28.65	40.80	52.82	4.89	16.65	28.67	3 38 58.75									
	9	β Orionis - - -	5.92	16.32	27.14	38.40	49.44	0.18	11.96	5 6 38.48									
	10	ε Orionis - - -	22.00	32.84	43.45	54.64	5.44	16.49	27.60	5 27 54.63									
	11	α Orionis - - -	48.40	59.08	10.45	21.28	32.54	43.32	54.80	5 46 21.41									
	12	α Canis Majoris -	16.97	28 00	39.56	51.06	2.50	13.98	25.40	6 37 51.06									
	13	ε Canis Majoris -	25.26	37.84	50.12	2.75	15.20	27.64	40.14	6 52 2.71									
12	†14	Sun, 1st L. - -				2.49	14.21	26.10	38.09	19 34 20.22									
	†15	Sun, 2d L. - -	47.31	59.00	10.78	22.75	34.63	46.61	58.60	19 36 22.81									
	16	Polaris - - -					57.5	59.5	64.0	1 19 0.33									
	17	α Arietis - - -	16.8	28.7	40.5	52.4	4.4	16.3	28.2	1 58 52.47	16 5 55.8	56.0	59.5	57.4	57.17	43.752	29.902	50.2	44.0
	18	α Ceti - - - -	2.8	13.9	24.7	35.4	46.5	57.7	8.8	2 54 35.69	35 23 66.3	62.5	59.5	62.1	62.60	38.000	29.936	49.5	47.4
	19	α Persei - - - -	57.0	13.6	30.3	47.5	3 9	21.0	37.9	3 13 47.31	349 36 2.3	6.2	0.0	2.7	2.80	36.668	29.942	49.5	41.5
	20	α Tauri - - - -	52.87	4.08	15.27	26.90	38.28	49.73	0.89	4 26 26.83									
14	21	γ Tauri - - - -		14.3	25.9	37.8	50.0	1.8	13.9	3 37 43.96									
	22	γ¹ Eridani - - -	31.88	43.06	54.32	5.78	17.15	27.99	39.20	3 50 5.64									
	23	α Tauri - - - -	48.75	59.97	11.35	22.70	34.00	45.67	57.06	4 26 22.79									
	24	Bessel Z, 396 -	32.10	43.91	56.31	8.64	20.75	32.68	45.10	5 2 8.50									
	†25	Mars, 1st L. - -		58.83	11.03	23.43	35.52	47.98	0.20	5 7 29.50									
	†26	Mars, 2d L. - -		0.52	12.70	25.09	37.10	49.42	1.60	5 7 31.07									
	27	β Orionis - - -	51.45	2.40	13.10	24.39		46.22	57.55	5 24 22.52									
	28	ε Orionis - - -	7.07	18.29	28.89	40.26	50.89	2.20		5 28 34.60									
18	29	α Herculis - - -	17.2	28.4	40.0	51.3	2.4	13.9	25.2	17 7 51.20									
	30	α Ophiuchi - - -			50.0	1.0	12.0	23.2	34.4	17 28 12.12									
	31	γ Draconis - - -		33.6	51.0	8.4	26.0	43.8	1.7	17 53 17.41									
	32	α Lyræ - - - -	11.5	25.5	39.3	53.3	7.4	21.4	35.5	18 31 53 41									
19	†33	Sun, 1st L. - -	24.0	36.3	48.1	0.0	11.4	22.8	35.0	20 4 59.66									
	†34	Sun, 2d L. - -	44.0	55.2	7.3	19.2	30.4	42.2	54.1	20 7 18.91									
	35	Polaris - - - -	32.0	32.5	34.0	44.0	45.0	44.5	53.0	1 4 40.71									
	36	α Arietis - - - -	11.6	23.3	35.2	47.3	59.0	11.0	23.0	1 58 47.20									
	†37	Mars, 1st & N. L.	55.1	6.9	19.3	31.2	43.4	56.3	8.2	5 6 31.49	12 38 61.9	57.0	57.3	61.8	59.50	45.752	30.298	35.4	28.8
	38	α Orionis - - -	34.5	45.6	56.2	7.5	18.7	29.9	41.0	5 47 7.63	31 29 61.4	56.2	53.7	60.0	57.82	40.689	30.316	36.0	28.3
21	39	α Lyræ - - - -	9.3	23.2	37.5	51.6	5.8	19.3	33.8	18 31 51.50									
	40	α Aquilæ - - -	55.0	6.0	17.2	28.1	39.1	50.2	1.5	19 43 28.16									
22	41	Sun, 1st L. - -	3.3	15.3	27.1	38.9	50.7	2.4	13.8	20 17 38.79									
	42	Sun, 2d L. - -	22.3	34.0	46.0	57.7	9.2	21.0	32.5	20 19 57.53									
	43	α Cygni - - - -	32.4	48.2	3.4	19.0	34.2	50.0	5.5	20 36 18.96									
	44	β Tauri - - - -	14.0	26.3	38.4	51.0	3.7	16.2	28.7	5 16 51.19									
	45	δ Orionis - - - -	50.5	1.8	12.4	23.5	34.1	45.0	56.5	5 24 23.40									
	†46	α Lyræ - - - -	9.0	22.4	37.0	51.0	5.0	19.3	32.8	18 31 50.93									
23	†47	Polaris - - - -	30.0	33.0	35.5	38.0	41.0			0 57 35.50									
28	48	α Aquilæ - - -	18.2	59.1	10.0	21.1	32.2	43.2	54.5	19 43 21.19									
	49	α Cygni - - - -	25.4	41.0	56.2	11.5	27.1	42.2	58.1	20 36 11.64									
29	50	Polaris - - - -	16.0	20.0	21.0	23.0	27.0	27.0	34.0	1 4 24.00									
	51	Mars, 1st & N. L.	17.85	29.89	41.11	53.19	5.69	17.55	30.21	5 6 53.64	12 47 58.6	56.5	54.2	58.5	56.95	41.857	30.350		32.9
	52	Mars, 2d & N. L.	19.07		41.94	54.27	6.47	18.64	31.12	5 6 58.58									

Date.		Clock.	Hourly rate.	VALUE OF m.	n.	c.	Errors of run.	Mic. Coin. At	
	h.	s.	s.	s.	s.	s.	″	h.	revs.
Jan. 5,	0	f 18.415	l .021	− .474	+ .573	+ .191			
9,	5	s 42.440	l .291						
12,	3	f 8.820	l .025						
	4	s 52.867	l .106						
14,	4	s 57.005	l .090						
18,	18	f 3.932	l .028						
19,	4	f 3.677	l .026						
21,	20	f 1.943	l .025						
22,	5	f 1.750	l .025						
22,	18	f 1.408	l .029						
28,	20	s 5.277	l .031						

1 rev. = 34″.356.

No. for ref.	COR. IN R.A. Inst.	COR. IN R.A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	° ′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	+ 0.23	− 18.53					18 31 49.59	+ 38 38	+ 2.00			Jan.	12.	2.5h.	
2	− .51	18.52					19 5 32.46	− 22 36			2.4	5.4	0.5	1.6	2.48
3	− .51	18.52									2.3	5.9	1.0	2.0	2.80
4	+ .08	18.42					0 0 37.89	+ 28 15	0.60		2.9	5.9	1.0	2.5	3.07
5	− .13	18.42					0 5 30.25	14 20	+ 0.69						
6	− .11	− 18.32					4 27 19.60	16 12	− .59		2.53	5.73	0.83	2.40	2.78
7	+ .49	+ 41.92					3 13 38.90	49 19	.79			Mic.	39.404,	−10	rdgs.
8	− 5.99	42.05					3 38 34.81	+ 23 38	.45						
9	.37	42.44					5 7 20.55	− 8 23	.69						
10	.29	42.58					5 27 36.92	− 1.18	.73						
11	.21	42.66					5 46 3.86	+ 7 22	.75						
12	.44	42.91					6 37 33.53	− 16 31	.99						
13	.57	42.99					6 52 45.13	28 46	1.23						
14	18.25	51.98					10 36 4.12	− 21 21				Jan.	19.		
15	.50	+ 51.98									60.2	62.7	59.0	61.2	60.78
16	13 37.43	− 8.87					1 5 13.93	+ 88 30	− 13.16		60.4	62.1	61.7	61.1	61.32
17	.02	8.85	+ 2 26.58	+ 17.01	16 8 40.76	39.486	1 58 43.60	22 44 58.49	+ .07	+ 1.72					
18	− .24	8.82	− 51.04	+ 41.92	35 23 53.48		2 54 26.63	3 29 45.77	− .09	+ 9.67	60.30	62.40	60.35	61.15	61.05
19	+ .49	− 8.81	− 1 36.80	− 10.89	349 34 15.11		3 13 38.99	49 19 24.14	.73	− 3.57					
20	− .11								.57			Mic.	39.264	−10	rdgs.
21	5.95	+ 56.97					3 37 34.95	+ 23 38	.60						
22	.42	56.99					3 51 2.21	− 13 56	.40						
23	− .11	57.05					4 27 19.73	+ 16 12	.54						
24	+ .02	57.10					5 3 5.62	+ 26 17	.75						
25	− 6.08	57.11					5 9 21.32								
26	− 6.08	57.11													
27	+ 1.54	57.15					5 24 21.21	− 0 25	.70						
28	+ 5.20	+ 57.15					5 28 36.95	− 1 18	− .71			Jan.	22,	5 7h.	
29	− .12	− 3.96					17 7 47.12	+ 14 33	+ 1.44		59.4	61.9	57.2	60.9	59.85
30	11.38	3.95					17 28 56.79	12 40	1.50		59.2	61.9	57.0	61.9	60.00
31	− 8.23	3.93					17 53 5.45	51 30	2.08		59.8	61.8	57.5	61.4	60.12
32	+ .23	3.92					18 31 49.72	+ 38 39	+ 1.82		59.47	61.87	57.23	61.40	59.99
33	− .48	3.87					20 6 4.94	− 20 18							
34	− .48	3.87										Mic.	39.257	−10	rdgs.
35	+ 28.98	3.75					1 5 13.44	+ 88.30	− 6.99						
36	− .02	3.73					1 58 43.45	22 45	+ .19						
37	+ .02	3.65	+ 3 41.86	+ 17.40	12 42 58.76	39.294	5 6 28.31	26 10 40.49							
38	− .21	3.63	+ 47.92	+ 37.75	31 31 23.49		5 47 3.79	7 22 15.76	− .74	+ 10.71					
39	+ .23	1.98					18 31 49.75	38 38	+ 1.77						
40	− .19	1.97					19 43 26.00	+ 8 28	1.66						
41	.48	1.94					20 18 45.74	− 19 38				Jan.	29,	5.5h.	
42	− .48	1.94									58.7	61.8	58.0	60.4	59.72
43	+ .36	1.93					20 36 17.39	+ 44 45	+ 1.78		58.2	61.6	58.8	60.8	59.85
44	+ .05	1.74					5 16 49.50	+ 28 28	− 0.73		59.0	61.9	58.6	59.9	59.85
45	− .29	1.74					5 24 21.37	− 0 25	− 0.66						
46	+ .23	− 1.39					18 31 49.77	+ 38 38	+ 1.75		58.63	61.77	58.46	60.33	59.81
47	+ 7 32.26	− 1.25					1 5 6.51	88 30	− 3.85			Mic.	39.290	−10	rdgs.
48	− .19	+ 5.27					19 43 26.27	8 28	+ 1.54						
49	+ .36	5.30					20 36 17.30	44 45	1.72						
50	28.98	+ 5.12					1 4 58.10	88 30	+ 1.10						
51	+ .02	.02	+ 1 28.40	+ 17.08	12 49 42.43	39.284	5 7	+ 26 3 56.82							
52	− 4.05	+ .02													

No.	Object.	COR. IN R A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
2	Sun - -		1 10.70	
14	Sun - -		1 10.17	
25	Mars - -		0.39	
33	Sun - -		1 9.62	
37	Mars - -	+ 0.45		
41	Sun - -		1 9.37	
50	Mars - -		0.43	

2, 6, 14, 25, 33, 37, 46. Unsteady. 37. Well defined.
47. At wires VI and VII, clouded.

DATE.	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THER'S. At.	Ex.
1850.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ″ ″	″	″	″	″	Wire	Revs.	In.	°	°
Feb. 5	†1	γ Ceti	50.7	1.2	12.3	23.4	34.4	45.5	56.7	2 35 23.46										
	†2	α Ceti	44.9	56.1	7.0	18.1	29.1	40.0	51.1	2 54 18.04										
	3	α Persei	39.3	56.0	13.0	29.2	46.6	3.7	20.2	3 13 29.71										
	4	17 Tauri	14.3	26.4	38.3	50.3	2.4	14.3	26.2	3 35 50.31										
	5	η Tauri	50.0	2.4	14.3	26.5	38.4	50.0	2.0	3 38 26.23										
8	6	17 Tauri	13.0	24.4	36.5	48.8	0.7	12.7	24.7	3 35 48.69										
	7	23 Tauri	--	--	4.0	16.0	28.0	40.0	2.0	3 37 28.00										
	8	η Tauri	--	10.2	22.4	34.7	46.9	58.7	11.0	3 38 40.65										
	9	γ^1 Eridani	18.4	29.5	41.0	52.4	3.5	14.9	26.3	3 50 52.29										
10	10	α Aquilæ	42.3	53.2	4.3	15.2	26.4	37.5	48.8	19 43 15.39										
11	11	α Orionis	49.09	0.40	11.45	22.49	33.59	44.55	55.76	5 46 22.48	31 32 61.1	56.7	55.9	60.0	58.42	IV.	35.470	30.082	42.2	35.2
	12	μ Geminorum	36.90	48.65	0.49	12.15	24.20	36.11	47.95	6 13 12.35	16 18 5.4	3.4	0.4	5.5	3.67		39.839	30.092	42.1	34.5
	13	α Canis Majoris	18.12	29.29	40.80	52.12	3.64	14.95	26.30	6 38 52.17	55 24 5.1	3.8	1.3	2.3	3.12		38.008	30.102	42.4	33.9
	14	ε Canis Majoris	26.60	38.82	51.49	3.96	16.40	28.95	41.48	6 52 3.96	67 39 9.7	8.7	9.0	8.4	8.95		36.978	30.100	42.1	33.9
14	15	δ Orionis	26.0	37.0	48.0	58.9	10.0	21.0	32.0	5 24 58.99										
	16	ε Orionis	--	2.3	13.0	24.4	35.4	46.3	57.6	5 28 29.83										
	17	ι Orionis	18.3	29.4	40.4	51.3	2.4	13.6	24.7	5 46 51.44										
16	18	γ^1 Eridani	15.7	26.4	37.9	49.1	0.4	12.2	23.5	3 50 49.31										
	19	α Tauri	--	--	--	--	17.0	29.4	40.9	4 27 29 10										
	20	α Aurigæ	37.3	53.0	8.4	24.0	40.1	55.5	11.2	5 5 24.21										
	21	Mars, N. L.	--	--	--	--	--	--	--	5 20	12 53 61.7	62.4	59.8	63.8	61.93	III.	46.140	30.102	41.5	32.5
	22	δ Ursæ Minoris, S. P.	45.0	41.0	--	31.0	26.0	22.0	17.0	6 20 0.33										
	23	δ Ursæ Minoris, S. P.	26.5	22.5	--	14.4	7.8	3.8	58.4	6 19 42.23										
	24	51 (Hev.) Cephei	23.2	--	11.5	2.3	52.7	39.8	33.4	6 29 17.15										
	25	ε Canis Majoris	54.4	7.4	20.1	32.3	45.2	57.3	10.2	6 52 32.41										
19	26	ε Hydræ	--	55.15	6.02	17.29	28.25	39.30	50.44	8 38 22.73										
	27	α Hydræ	7.75	18.62	29.62	40.95	52.02	3.02	14.11	9 19 40.87										
	28	ε Leonis	11.08	22.95	35.04	47.48	59.22	11.35	23.67	9 36 47.26										
	29	α Leonis	16.86	27.65	38.88	50.38	1.44	12.79	24.20	9 59 50.29										
22	30	β Orionis	15.45	26.45	37.42	48.59	39.54	10.65	21.95	5 7 48.59										
	31	δ Orionis	17.00	27.44	38.55	49.64	0.59	11.29	22.38	5 23 49.56										
	32	α Leporis	1.03	12.57	24.11	35.93	47.19	58.66	10.56	5 25 35.72										
	†33	μ Geminorum	46.55	58.75	10.45	22.09	33.97	45.81	58.08	6 13 22.24										
	34	γ Geminorum	--	--	20.38	31.89	43.40	54.94	6.50	6 29 43.42										
	35	α Canis Majoris	27.50	38.96	50.33	1.95	13.23	24.88	36.16	6 38 1.86										
	†36	ε Canis Majoris	35.08	47.62	--	12.63	25.21	37.68	50.28	6 52 14.75										
	37	δ Geminorum	3.53	15.36	27.13	39.20	51.09	3.00	14 93	7 10 39.18										
	38	Moon 1st L.	--	34.40	46.00	57.95	9.00	21.00	32.86	7 12 3.53										
	39	κ Geminorum	16.86	29.00	40.82	52.98	4.91	16.91	28.85	7 34 52.90										
23	40	α Aurigæ	24.36	39.84	55.50	11.40	27.15	42.87	58.15	5 5 11.32	353 2 61.0	61.8	56.7	59.4	59.72	IV.	40.178	30.270	42.5	33.7
	41	β Tauri	45.95	58.44	10.76	23.24	35.97	48.07	0.97	5 16 23.34										
	42	δ Orionis	22.80	33.66	44.60	55.50	6.48	17.48	28.64	5 23 55.59	39 14 56.7	52.5	52.0	55.0	54.05		44.700	30.274	42.0	32.9
	43	α Columbæ	--	21.57	34.92	48.28	1.70	14.69	28.25	5 33 54.92										
	44	α Canis Majoris	33.78	45.26	56.41	8.28	19.46	30.97	42.43	6 38 8.08										
	45	Vesta	9.05	21.45	33.60	45.88	58.13	10.18	22.47	6 52 45.82	12 59 63.7	61.2	60.0	61.8	61.68		38.124	30.260	40.0	30.6
	46	δ Geminorum	--	--	--	45.44	57.17	9.13	20.96	7 11 3.17	16 38 62.2	58.2	56.0	59.4	58.95		38.107	30.256	39.5	30.4
	47	κ Geminorum	22.95	34.92	46.97	59.09	11.31	23.12	35.37	7 34 59.10	14 8 59.0	55.6	54.5	59.0	57.02		38.279	30.252	39.0	30.0
	48	Moon 1st L.	3.92	15.22	27.29	39.22	50.95	2.76	14.73	8 16 39.16										
	49	δ Cancri	11.05	22.30	33.92	45.44	57.09	8.58	20.35	8 35 45.53	20 11 58.2	54.7	54.7	57.0	56.15		38.312	30.244	37.4	28.9
	50	α Cancri	19.50	30.70	41.93	53.04	4.24	15.50	26.64	8 49 53.08	26 23 60.3	54.0	54.7	55.7	56.18		45.180	30.242	37.2	29.0
25	51	Polaris	55.7	56.0	57.0	3.7	7.0	8.0	3.5	1 4 2.99										
	52	α Arietis	54.40	6.04	17.81	29.80	41.67	53.62	5.57	1 58 29.84										

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Feb. 5, 3	s 8.335	l .020	— .474	+ .573	+ .191			
8, 4	9.971	.021						
10, 20	11.256	.019						
11, 6	41.434	.115						
14, 6	12.461	.011						
16, 5	12.884	l .009						
19, 10	33.586	g .063						
22, 6	31.710	g .222						
23, 7	25.285	g .228						
25, 6	s 11.764	g .294	— .325	+ .389	+ .191			

1 rev. = 34.″356.

33. Wire IV. recorded 21.09s.
36. Added 1s. to the mean of wires.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″					° ′
1	− 0.25	+ 8.33					2 35 31.54	+ 2 35	+ .36			Feb.	11,	7h.	
2	− .24	8.33					2 54 26.13	3 29	+ .25		59.3	63.5	58.6	59.8	60.30
3	+ .49	8.34					3 13 38.54	49 19	− .18		60.4	63.7	59.5	61.7	61.32
4	− .01	8.35					3 35 58.65	23 38	.08						
5	.01	8.35					3 38 34.57	23 38	.09		59.85	63.60	59.05	60.75	60.81
6	.01	9.96					3 35 58.64	23 38	.04			Mic	39.280	−5	rdgs.
7	11.95	9.96					3 37 26.01	23 39	.04						
8	5.98	9.96					3 38 44.63	+ 23 38	− .05						
9	.42	9.97					3 51 1.86	− 13 56	+ .03						
10	.19						19 43	+ 8 28							
11	.21	41.45	− 2 11.72	+ 36.92	31 31 23.62	39.304	5 46 3.68	7 22 15.63	− .55	+ 11.84		Feb	16,	4h.	
12	.03	41.46	+ 18.38	17.65	16 18 39.70		6 13 53.78	+ 22 34 59.55	.69	7.81	59.2	62.8	58.4	60.8	60.30
13	.44	41.51	− 44.53	1 27.35	55 24 45.94		6 38 33.24	− 16 31 6.69	.85	17.01	59.4	62.8	58.7	61.9	60.70
14	.57	41.54	1 19.91	2 25.83	67 40 14.87		6 53 44.93	28 46 35.62	1.07	+ 18.23					
15	.29	12.45					5 24 21.15	0 25	.40		59.30	62.80	58.55	61.35	60.50
16	5.76	12.45					5 28 36.52	− 1 18	.42			Mic.	39.472	−5	rdgs.
17	.22	12.46					5 46 8.78	+ 7 22	.51						
18	.42	12.87					3 51 1.76	− 13 57	.18						
19	− 22.95	12.88					4 27 19.03	+ 16 12	.11						
20	+ .39	12.88					5 5 37.48	45 50	− .51						
21		12.89	− 1 57.87	+ 16.49	12 52 20.55	39.487	5 20	26 1 18.70				Feb.	23,	4.5h.	
22	17.63	12.90					6 20 30.86	86 35	+ 11.72		59.2	61.0	56.4	59.0	58.90
23	+ 17.63	33.82					6 20 33.68	86 35	11.72		59.6	60.5	56.3	58.0	58.60
24	− 1 0.93	33.81					6 28 50.03	+ 87 15	+ 14.61						
25	.57	12.90					6 52 44.74	− 28 47	− 0.99		59.40	60.75	56.35	58.50	58.75
26	5.72	33.67					8 38 50.68	+ 6 58	1.01			Mic.	39.497	−10	rdgs.
27	.36	33.63					9 20 14.14	− 8 1	1.17						
28	.00	33.61					9 37 20.87	+ 24 27	1.04						
29	.15	33.59					10 0 23.73	+ 12 41	1.05						
30	.37	31.91					5 7 20.13	− 8 23	.19						
31	.29	31.84					5 24 21.11	0 25	.29			Feb	23,	7.7h	
32	.46	31.84					5 25 7.10	− 17 56	.32		62.8	63.4	57.9	59.8	60.97
33	.03	31.65					6 13 53.86	+ 22 35	.56		63.2	64.7	59.3	61.5	62.18
34	11.52	31.60					6 29 3.50	+ 16 33	.61		63.7	64.9	60.0	62.8	62.85
35	.44	31.56					6 38 32.98	− 16 31	.72						
36	2.66	31.52					6 52 44.61	− 28 46	.92		63.23	64.33	59.07	61.37	62.00
37	.03	31.44					7 11 10.59	+ 22 15	.78						
38	6.03	31.43					7 13 41.67	19 12				Mic.	39.262	−10	rdgs.
39	− .00	31.36					7 35 24.26	24 45	.86						
40	+ .39	25.72	+ 24.63	− 7.40	353 3 16.95	39.461	5 5 37.43	45 50 22.30	.36	− 1.04					
41	+ .06	25.67					5 16 49.07	+ 28 28	.30						
42	− .29	25.65	+ 2 59.99	+ 49.81	39 18 46.25	39.391	5 24 20.95	− 0 25 7.00	.28	+ 14.63		Feb	25,	7.6h.	
43	7.25	25.62					5 34 13.29	− 34 10	.42		61.5	61.9	58.8	61.3	60.88
44	− .45	25.37					6 38 33.00		.70		61.2	62.5	59.1	60.3	60.77
45	+ .02	25.32	− 42.33	13.03	12 59 32.38	39.356	6 53 11.16	+ 25 54 6.87			60.8	62.9	59.0	60.7	60.85
46	− 17.80	25.24	41.68	18.29	16 38 35.56	39.321	7 11 10.61	22 15 3.69	.77	8.17	61.17	62.43	58.97	60.77	60.83
47	.00	25.15	35.78	15.43	14 8 36.67		7 35 24.25	24 45 2.58	.86	7.78					
48	.10	25.00					8 18 16.41	17 43				Mic	39.311	−10	rdgs.
49	.08	24.92	− 34.64	22.57	20 11 44.48		8 36 10.41	18 41 54.77	1.00	9.49					
50	− .15	24.87	+ 3 21.32	30.52	26 27 48.02		8 50 17.80	12 25 51.23	− 1.03	+ 10.40					
51	+ 22.00	13.21					1 4 38.20	88 30	+ 19.92						
52	+ .04	+ 12.94					1 58 42.84	+ 22 45	+ .74						

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
38	Moon - -	+ 1 12.74		
48	Moon - -	+ 1 12.35		

1, 2. Exceedingly unsteady.

DATE.	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THER'S. At.	THER'S. Ex.
1850.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Feb. 25	1	α Orionis	18.46	29.52	40.59	51.78	2.57	13.62	25.90	5 46 51.78	31 29 54.4	47.6	46.1	49.7	49.45	IV.	41.034	29.722	51.5	46.3
	2	μ Geminorum	--	--	--	--	--	--	--	-- --	16 17 60.0	55.0	51.9	56.4	55.85		40.048	29.724	50.9	44.6
	† 3	α Canis Majoris	--	--	9.90	21.75	33.09	44.54	55.92	6 39 33.04	55 23 64.5	59.7	58.7	59.4	60.58		38.098	29.716	50.0	42.4
	4	Mars, 1st & N. L.	56.90	8.95	21.14	33.54	45.60	57.74	10.11	5 31 33.43	12 51 2.9	0.5	1.5	2.8	1.92		41.128	29.716	52.6	47.0
	5	Mars, 2d & N. L.	57.47	9.67	21.70	34.00	46.24	58.37	10.65	5 31 34.01										
	6	δ Geminorum	--	--	47.04	59.30	--	22.55	34.45	7 11 10.83										
	7	15 Argus	23.70	35.70	47.44	59.75	11.65	23.72	35.64	8 1 59.66										
Mar. 4	8	ε Canis Majoris	28.10	40.63	53.08	5.61	17.97	30.60	43.02	6 52 5.57										
	† 9	α² Geminorum	43.80	56.38	9.35	22.44	35.60	48.05		7 24 15.94										
	10	α Canis Minoris	15.03	26.30	37.00	48.11	59.26	10.26	21.64	7 30 48.23										
	11	15 Argus	55.12	7.20	19.00	31.16	43.24	55.00	7.36	8 0 31.15										
5	†12	Polaris	27.0	28.0	28.5	29.50	33.5	36.5	41.0	1 3 32.00										
	13	α Arietis	25.28	37.14	48.96	0.98	12.58	24.78	36.68	1 58 0.91										
8	14	ε Orionis	23.91	34.87	45.69	56.55	7.51	18.58	29.53	5 27 56.66										
	15	α Columbæ	54.00	7.40	20.21	33.71	47.14	0.21	13.65	5 33 33.76	72 59 59.8	55.6	54.0	54.3	55.92		39.978	30.110	48.5	43.9
	16	α Orionis	50.61	1.68	12.52	23.85	34.76	45.75	57.08	5 46 23.75	31 29 61.2	55.6	52.5	57.3	56.65		40.827	30.126	43.4	43.2
	†17							59.50	53.40		305 30 2.7	3.4	0.3	2.6	2.25		40.500	30.128	47.5	42.9
	†18	δ Ursæ Minoris, S. P.			14.40	9.37	4.32			6 21 8.68							40.480			42.8
	†19		21.20	18.60													40.502	30.128	47.5	42.7
	20	α Canis Majoris									55 20 58.0	52.9	53.7	57.0	55.40		43.724	30.128	47.0	41.6
	21	Vesta	9.17	21.09	33.62	45.82	57.98	10.26	22.65	6 54 45.80	12 44 62.0	57.4	56.0	55.6	57.75		39.547	30.136	46.5	41.2
	22	Jupiter, 1st & N. L.	31.84		53.35	4.94	16.15	26.98	38.00	11 19 8.54	32 47 56.8	53.4	51.2	53.8	53.80		39.425	30.176	40.0	35.8
	23	Jupiter, 2d & N. L.	34.58	45.60	56.35	7.69	18.50	29.81	40.72	11 19 7.61										
	24	β Leonis		26.13	38.17	48.97	0.30	12.00	23.47	11 41 54.84										
11	25	Mars, 1st L.		25.26	37.43	50.62		15.08	27.33	5 54 55.14										
	26	Mars, 2d L.		25.94	38.02	51.48	4.01	15.41	28.20	5 54 57.18										
	27	α Canis Majoris	0.57	12.22	23.50	34.94	46.61	57.85	9.55	6 39 35.03										
	28	α² Geminorum	25.09	38.15	51.31	4.27	17.35	30.09	43.11	7 26 4.20										
	29	α Canis Minoris	57.07	7.98	19.02	30.00	41.12	51.97	3.16	7 32 30.04										
	30	β Geminorum	33.33	45.84	58.28	10.83	23.28	35.71	48.43	7 37 10.81										
	31	α Hydræ		55.58	6.62	17.84	28.89	39.94	50.96	9 21 23.30	46 53 63.3	59.5	59.2	57.5	59.87		38.445	30.034	47.0	39.4
	†32	ε Leonis	48.00	0.17	12.24	24.43	36.44	48.49	0.39	9 38 24.31	14 23 60.7	57.2	52.4	57.7	57.00		42.535	30.028	46.5	38.8
	†33	α Leonis	54.02	5.21	16.58	27.83	39.29	50.41		10 1 22.23	26 11 62.5	57.8	53.2	59.2	58.18		37.350	30.036	46.2	38.0
Apr 2	34	α Hydræ	1.73	12.68	23.75	34.95	46.00	57.08	8.33	9 19 34.93										
	35	θ Ursæ Majoris			50.80	9.00	26.82	44.88	2.84	9 21 26.87										
	36	δ Hydræ et Crateris.		50.25	1.63	12.95	24.25	35.44	46.78	11 11 18.55										
	37	β Leonis	12.18	23.48	34.78	46.28	57.60	8.80	20.42	11 40 46.22										
	38	γ Ursæ Majoris		38.80	57.74	16.70	35.48	54.45	13.40	11 45 26.09										
	39	β Corvi	18.00	29.94	41.66	53.74	5.54	17.25	29.26	12 25 53.63										
	40	Polaris, S. P.					14.6	13.0	4.6	12 50 10.73										
15	41	β Leonis				22.76	33.82	45.44	56.79	11 41 39.70										
	42	γ Ursæ Majoris				52.96	11.40	31.00	49.32	11 46 21.17										
	†43	β Corvi			18.04	30.00	41.80	53.90	5.64	12 26 41.87	61 11 60.9	58.4	64.9	55.4	59.90		38.014	30.082	47.7	36.4
	†44	Polaris, S. P.							44.5		307 26 50.5	51.5	55.4	52.4	52.45		37.230	30.073	46.1	35.8
	45							49.0							52.62		37.115			
	46						48.5								52.79		37.000			
	47														52.96		36.975			
	†48					50.0				13 4 50.43					53.12		36.968	30.068		35.6
	49														53.29		37.008			
	50				55.0										53.46		37.108			
	51			52.0											53.63		37.200			
	†52		54.0								52.7	53.2	55.8	53.5	53.80		37.327			35.7

Date.		Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic coin. At		1 rev. = 34″.356.
	h.	s.	s.	s.	s.	s.	″	h.	revs.	
Feb. 25,	6	s 11.764	g .294	− .325	+ .389	+ .191				
Mar. 4,	7	39.316	l .192							
5,	1	s 41.516	l .128							
8,	7	f 21.107	g .567							
11,	8	f 62.803	g .586							
Apr. 2,	11	s 39.118	l .069							
15,	13	s 3.094	l .233							
17,	12	s 10.112	l .191							

No. for ref.	COR IN R A. Inst.	COR IN R A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	s.	s	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	− 0.08	+ 11.86	+ 58.38	+ 35.64	31 31 23.47	39.335	5 46 3.56	+ 7 22 15.78	− .36	+ 12.23					
2			+ 24.50	17.07	16 18 37.39		6 13	+ 22 35 1.86		7.45					
3	− 11.66	11.57	− 42.49	1 24.71	55 24 42.80		6 39 32.95	− 16 31 3.35	− .68	+ 18.65					
4	+ .08	11.91	+ 1 1.61	15.69	12 52 19.22	39.335	5 31 45.71	+ 26 1 20.03							
5	+ .08														
6	− 11.81	11.42					7 11 10.44	+ 22 15	− .72			Mar.	8, 12h.		
7	.29	11.10					8 1 10.47	− 23 53	1.16		61 8	65.4	57.0	60.4	61.15
8	− .32	39.29					6 52 44.54	− 28 46	.72		62.7	65.5	61.4	61.0	62.65
9	+ 6.63	39.39					7 25 1.96	+ 32 12	.72		62.8	67.0	58.8	61.1	62.43
10	− .10	39.41					7 31 27.54	+ 5 36	.71						
11	− .29	39.51					8 1 10.37	− 23 53	− 1.05		62.43	65.97	59.07	60.83	62.08
12	+ 22.00	+ 41.52					1 4 35.52	+ 88 30	+ 24.03			Mic.	39.202	−10	rdgs.
13	+ .04						1 58	+ 22 45	+ 0.86						
14	− .15	− 20.23					5 28 36.28	− 1 18	− 0.07						
15	.36	20.29	24.56	3 11.38	73 3 31.86	39.263	5 34 13.11	− 34 9 52.61	.11	+ 23.96		Mar	11, 9h.		
16	.08	20.41	+ 53.73	36.38	31 31 26.76		5 47 3.26	+ 7 22 12.49	− .17	12.37	60.4	62.8	57.2	60.7	60.28
17			− 1 23.07	40.60	305 29 19.78						61.1	62.1	56.7	60.0	59.97
18	− 10.08	20.73	1 23.08	41.80	20.97		18 20 37.87	+ 86 35 41.14	+ 5.57	11 49	60.8	62.8	57.0	60.0	60.15
19			− 1 23.10	41.28	20.43										
20		20.90	+ 2 33.26	1 26.05	55 24 54.71			− 16 31 15.46		19.49	60.77	62.57	56.96	60.23	60.13
21	+ .08	21.04	9.76	1 12 51	12 45 20.02		6 54 24.84	+ 26 8 19.23				Mic.	39.347	−10	rdgs.
22	− 3.75	23.55	+ 5.57	58.76	32 48 58.13		11 18 42.61	6 4 41.12							
23	0.08	23.55													
24	5.70	23.75					11 41 25.39	15 24	− 1.11			Apr.	15,	14.5h	
25	4.78	61.56									59.8	61.5	64.7	60.7	61.68
26	6.00	61.56					5 53 49.21	+ 25 57			59.9	60.7	64.0	59.7	61.07
27	− .24	62.01					6 38 32.78	− 16 31	.48						
28	+ .14	62.47					7 25 1.87	+ 32 12	.61		59.85	61.10	64.35	60.20	61.38
29	− .09	62.51					7 31 27.44	5 36	.62						
30	+ .11	62.56					7 36 8.36	+ 28 23	.64			Mic.	39.462	−8	rdgs.
31	− 5.72	63.58	− 31.13	1 3.59	46 54 32.33	39.351	9 20 14.00	− 8 0 53.08	1.11	13.47					
32	+ .07	63.76	+ 1 49.39	15.35	14 26 1.74		9 37 20.62	+ 24 27 37.51	1.03	7.68		Apr.	17,	13h.	
33	+ 5.59	− 63.97	− 34.39	29.40	26 11 53.19		10 0 23.85	+ 12 41 46.06	1.08	9.59	1.7	3.9	4.8	0.3	2.68
34	− .19	+ 39.00					9 20 13.74	− 8 0	.86		3.2	4.6	7.0	0.8	3.90
35	17.43	39.00					9 22 48.44	+ 52 21	.84						
36	5.86	39.13					11 11 51.82	− 13 58	1.34		2.45	4.25	5.90	0.55	3.29
37	0.02	39.17					11 41 25.37	+ 15 24	1.18						
38	8.87	39.18					11 45 56.40	+ 54 31	1.50			Mic.	39.189	−10	rdgs.
39	− .28	39.22					12 26 32.57	− 22 34	− 1.61						
40	+13 41.33	39.24					13 4 31.30	+ 88 30	+ 31.01						
41	− 17.08	2.78					11 41 25.40	15 24	− 1.12						
42	27.78	2.80					11 45 56.19	+ 54 31	1.38						
43	12.14	2.96	+ 4 58.35	+ 1 49.88	61 27 48.13	39.502	12 26 32.69	− 22 34 8.88	− 1.61	9.59					
44			− 1 23.86	− 1 16.62	307 24 11.97										
45			1 25.12	1 16.63	10.87										
46			1 24.37	1 16.64	11.78										
47			1 26.11	1 16.65	10.20										
48	− 22.60	+ 3.11	1 27.07	1 16.65	9.40		13 4 30.94	+ 88 30 30.55	+ 30.16	+ 5.16					
49			1 27.68	1 16.64	8.97										
50			1 28.94	1 16.64	7.88										
51			1 28.19	1 16.63	8.81										
52			− 1 28.86	− 1 16.63	8.31										

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
3	Jupiter .	- - - -	1.42	20.40
4	Mars .	- - - -	0.29	
22	Jupiter .	- - - -	1.37	
25	Mars .	- - - -	0.33	

3, 32, 43. Blurred.
9, 12. Very unsteady.
17, 18, 19. Observed for dec. at 18m. 9s., 21m. 14s., 24m. 19s.
33. Poor observation. Lamp went out. Field of view too dark.
44 to 52. Unsteady and a little blurred at first; more steady and better defined at last wires. Observed for declination at 51m. 4s., 53m. 30s., 58m. 1s., 1m. 34s., 5m. 0s., 8m. 33s., 12m. 6s., 15m. 28s., 19m. 0s.
45 to 51. Circle readings interpolated.

DATE.	No. for ref.	OBJECTS OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
1850.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire IV.	Revs.	In.	°	°
Apr. 15	1	η Ursæ Majoris - -	44.77	0.00	16.85	34.98	52.28	9.70	26.78	13 41 35.05										
	2	η Bootis - - - -	55.97	7.30	18.98	30.88	42.36	53.98	5.60	13 47 30.72										
17	3	Jupiter, 1st & N.L	59.00	9.90	21.00		42.84	54.08	5.34	11 2 32.03	31 9 62.0	57.2	62.6	62.2	61.00		40.368	30.132	45.4	35.4
	4	Jupiter, 2d & S. L.	1.62	12.76	24.00	34.76	46.00	56.96	8.06	11 2 34.88							41.555			
	5	β Leonis - - - -	41.18	52.52	3.96	15.40	26.56	37.94	49.48	11 41 15.29										
	6	γ Ursæ Majoris - -	49.24	8.00	26.94	45.92	4.42	23.26	42.64	11 45 45.77										
29	7	β Orionis - - -			27.65	38.64	49.75	0.72	12.15	5 6 49.78										
	8	ρ Orionis - - -		33.00	44.18	55.18	6.16	17.00	28.15	5 27 0.61										
	9	α² Geminorum - -	41.26	54.37	7.38	20.19		46.16	59.16	7 25 18.09	6 38 62.4	55.0	58.8	58.8	58.75		42.625	29.826	67.7	68.8
	†10	α Canis Minoris -					57.25	8.23	19.35	7 31 8.27	33 14 65.4	56.5	62.8	57.8	60.62		42.510	29.826	67.7	68.9
	11	β Geminorum - -			14.46	26.96	39.31			7 36 26.91	10 27 10.1	1.7	6.4	5.0	5.80		45.340	29.826	67.7	68.8
	12	α Leonis - - - -				42.47	53.88	5.10	16.47	10 0 59.48	26 8 59.6	52.5	56.0	56.8	56.22		43.614	29.902	67.5	63.9
	13	β Leonis - - - -	10.72	22.08	33.18	45.00	55.88	7.72	18.88	11 41 44.78	23 23 60.4	54.8	58.6	56.0	57.45		47.470	29.970	61.5	59.0
	†14	β Corvi - - - -		28.53	40.27	52.28	4.20	15.75	28.07	12 26 58.17	61 23 61.9	59.7	65.5	59.0	61.52		42.849	29.988	64.0	55.7
	15	α Virginis - - -		16.76	27.50	38.88	49.85	1.12	12.48	13 17 44.43										
	16	η Ursæ Majoris - -	7.00	23.78	40.73	58.04	15.16	32.34	49.43	13 41 58.07	348 48 5.5	6.5	5.8	5.9	5.93		42.610	30.022	61.7	53.0
	17	α Bootis - - - -	35.21	46.89	58.40	10.30	21.86	33.45	45.17	14 8 10.18	18 53 60.4	56.9	62.4	63.8	61.37		41.750	30.034	61.5	52.8
	†18	β¹ Scorpii - - - -	29.90	41.45	52.84	4.16	16.24	27.72	39.36	15 56 4.52	58 11 60.7	59.8	56.8	57.5	58.70		45.282	30.070	62.0	48.8
	†19	δ Ophiuchi - - -		28.44	39.25	50.45	1.22	12.00		16 6 50.07	42 8 63.9	59.2	64.8	58.7	61.65		42.708	30.068	62.0	48.4
	20	α Scorpii - - - -								16 19	64 53 60.4	55.1	60.4	54.7	57.65		44.964	30.076	62.0	48.2
	21	η Ophiuchi - - -	33.83	45.00	56.35	7.63	19.23	30.64	41.85	17 1 7.79	54 23 64.5	60.7	66.8	58.4	62.60		39.687	30.088	61.5	47.2
	†22	ξ Ophiuchi - - -	46.93	58.55	9.95	22.80	33.92	45.45	57.27	17 12 22.12	59 48 6.5	5.8	10.7	1.3	6.07		40.308	30.092	61.2	47.4
	23	Moon, 2d & N. L.	34.01	46.15	58.15	10.00	21.67	34.00	46.10	17 39 10.01										
	24	4 Sagittarii - - -	22.62	34.52	46.94	58.92	11.00	23.10	35.00	17 50 58.87										
	†25	μ¹ Sagittarii - - -	33.09	45.00	56.40	8.37	20.04	32.00	43.67	18 4 8.37	59 54 8.4	7.4	11.5	2.5	7.45		44.994	30.092	60.0	45.8
	†26	Polaris - - -	35								310 23 2.5	2.2	5.9	1.3	2.98		39.718			
	27			34.0													39.842			
	28					37.0											39.867			
	†29						36.0			1 5 46.42							39.850			
	30							36.0									39.765			
	†31								40.5								39.711			
May 1	32	β Leonis - - - -	9.70	20.98	32.44	43.87	55.24	6.64	17.86	11 41 43.82	23 27 22.2	27.8	26.8	23.0	24.95		41.390	30.206	57.5	50.8
	33	β Corvi - - - -	15.85	27.64	39.54	51.44	3.22	15.14	26.95	12 26 51.39										
	†34	α Virginis - - -								13 17	49 11 64.2	59.7	62.3	58.5	61.18		44.657	30.220	58.4	47.7
6	35	Jupiter, 1st L. -	16.33	27.57	38.67	49.58	0.65	11.62	23.00	10 59 49.32										
	36	Jupiter, 2d L. -	18.87	30.25	40.82	52.03	3.25	14.59	25.45	10 59 52.18										
	37	δ Leonis - - - -	27.45	39.26	51.06	2.80	14.48	26.35	38.22	11 6 2.80										
	38	β Corvi - - - -	51.68		15.44	27.18	39.26	51.20	3.18	12 26 31.32	61 24 4.2	1.7	8.4	1.3	3.90		42.688	30.000	67.0	54.5
9	39	β Corvi - - - -	54.00	5.57	17.40	29.49	41.24	53.37	5.07	12 26 29.45										
	†40	Polaris, S. P. -						57.0	47.0		307 24 0.9	3.8	8.1	2.9	3.92		41.678	29.838	59.5	50.2
	41						59.0										41.615			
	†42					59.5				13 4 57.71							41.598			49.2
	43				60.0												41.632			
	†44		62.0	59.5													41.685	29.838	58.2	48.8
	†45	η Bootis - - - -	55.95	7.34	19.24	30 83	42.28	53.86	5.80	13 47 30.76	19 42 9.7	7.4	12.7	8.4	9.55		42.868	29.842	56.5	47.5
	†46	α Bootis - - - -	12.64	24.25	35.84	47.82	59.20	10.79	22.82	14 8 47.62	18 54 5.6	0.8	7.0	2.0	3.85		41.549	29.844	56.3	46.4
	47	α² Libræ - - - -	0.04	11.44	22.54	34.10	45.93	56.64	8.30	14 42 34.14	54 15 6.2	4.8	10.7	2.6	6.08		42.984	29.842	56.5	44.7
	48	β Ursæ Minoris -		46.50	28.73	10.84	51.70	34.54	16.25	14 51 31.42										
	49	β Libræ - - - -	22.05	33.06		55.14	6.72	17.25	28.64	15 8 57.14	47 39 8.8	2.7	10.5	4.0	6.50		44.453	29.836	56.2	44.0
	50	Argel'r Z, 210, 43.		17.89	30.24	42.06	54.20	6.15	18.68	16 6 48.20	63 33 6.4	1.4	10.9	0.4	4.77		43.978	29.820	55.0	42.4
	51	α Scorpii - - - -	35.34	47.90	59.71	12.08	24.34	36.50	48.62	16 20 12.07										
11	52	β Corvi - - - -	54.34	6.20	18.05	29.94	12.08	53.80	5.84	12 26 30.03										

Date.	Clock.	Hourly Rate.	VALUE OF m.	n.	c.	Error of Runs.	Mic. coin At.	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Apr. 17, 12	s 10.112	l .191	− .325	+ .389	+ .191			
29, 7	f 19.444	l .025						
15	f 19.415	l .028						
May 1, 12	f 18.595	l .028						
6, 12	s 5.350	g .021						
9, 15	s 3.100	g .022						
11, 13	s 2.616	g .001						

1 rev. = 34″.356.

22. Mic. recorded 39.308.
May 1, 11h. Adjusted micrometer head.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m s.	° ′ ″	s.	″	″	″	″	″	″
1	+ 0.44	+ 3.26					13 41 38.75	+ 50 3	— 1.59						
2	+ .01	3.28					13 47 34.01	19 9	1.34						
3	— .08	9.92	+ 37.00	+ 35.52	31 11 13.52	39.285	11 2 43.30	7 42 5.33							
4	.08	9.92	1 17.79	35.53	31 11 54.32										
5	— .02	10.05					11 41 25.32	15 24	1.11						
6	+ .56	+ 10.06					11 45 56.39	+ 54 31	— 1.35			April	29,	8h.	
7	— 11.26	— 19.47					5 7 19.05	— 8 23	+ .87		60.1	59.9	59.0	55.8	58.70
8	— 5.61	19.46					5 26 35.54	— 17 56	.76		60.4	59.4	59.9	56.4	59.02
9	+ 2.30	19.43	+ 1 54.84	6.54	6 41 0.13	39.282	7 25 0.96	+ 32 12 39.12	.35	+ 2.68	59.7	59.3	59.8	56.8	58.90
10	— 22.13	19.43	1 50.88	36.61	33 17 28.11		7 31 26.71	5 36 11.14	.21	11.82					
11	+ .09	19.43	3 28.11	10.35	10 30 44.26		7 36 7.57	28 22 54.99	+ .28	3.72	60.07	59.53	59.57	56.33	58.88
12	— 16.90	19.47	2 28.81	27.77	26 11 52.80		10 0 23.11	12 41 46.45	— .57	6.89					
13	.02	19.51	4 39.52	24.82	23 29 1.79	39.334	11 41 25.25	+ 15 24 37.46	1.03	4.46		Mic.	39.315	—10	rdgs.
14	6.21	19.49	2 0.76	+ 1 45.28	61 27 47.56		12 26 32.47	— 22 34 8.31	1.58	+ 10.87					
15	— 5.76	19.46					13 17 19.21	— 10 22	1.54						
16	+ .44	19.44	1 52.55	— 11.43	348 49 47.05		13 41 39.07	+ 50 3 52.2[illegible]	1.61	— 1.77		April	29,	16.7[illegible]	.
17	+ .02	19.43	1 23.00	+ 19.87	18 55 44.20		14 8 50.77	+ 19 57 55.05	1.41	+ 3.02	62.2	63.0	62.7	59.0	61.72
18	— .26	19.39	3 24.35	1 34.25	58 16 57.30		15 57 44.87	— 19 23 18.05	1.67	— 1.16	63.3	62.8	63.2	58.9	62.05
19	.18	19.38	1 55.99	52.99	42 11 50.63		16 6 30.51	3 18 11.38	1.48	+ .54	62.7	62.8	63.7	58.2	61.85
20			3 13.50	2 4.67	64 59 15.82		16 20	26 5 36.57		— 3.36					
21	.23	19.36	10.35	1 21.84	54 25 34.79	39.386	17 1 48.20	15 31 55.54	1.42	3.21	62.73	62.87	63.20	58.70	61.88
22	.27	19.35	31.69	1 40.56	59 50 18.32		17 12 2.50	20 56 39.07	1.44	4.65		Mic.	39.321	—10	rdgs.
23	.27	19.34					17 37 44.89	19 13							
24	.29	19.34					17 50 39.24	23 48	1.29			May	1,	12h.	
25	.27	19.33	3 12.68	+ 1 41.48	59 59 1.61		18 4 48.77	— 21 5 22.36	— 1.19	— 6.44	59.7	60.7	61.7	57.4	59.88
26			17.42	— 1 6.50	310 22 13.90						60.4	60.7	61.8	57.5	60.10
27			16.42	1 6.49	12.91						60.4	60.5	61.5	57.8	60.05
28			16.54	1 6.48	13.04										
29	48.60	19.13	16.46	1 6.48	12.96		1 4 38.69	+ 88 30 26.16	+ 26.02	+ 9.24	60.17	60.63	61.66	57.57	60.01
30			16.13	1 6.47	12.64										
31			16.59	— 1 6.46	13.11							Mic	39.146	—11	rdgs.
32	.02	18.60	1 17.08	+ 25.43	23 29 7.46	39.146	11 41 25.20	+ 15 24 31.79	— 1.02	4.25					
33	.28	— 18.58					12 26 32.51	— 22 34	1.58						
34			3 9.32	1 8.29	49 16 18.79		13 17	— 10 22 39.54		6.72		May	6,	11h.	
35	.12	+ 5.37					10 59 56.00	+ 7 55			61.7	61.9	62.4	58.9	61.22
36	— .12	5.37									61.8	61.8	62.5	58.8	61.23
37	+ .03	5.37					11 6 8.20	— 21 20	0.79						
38	— 4.24	5.34	1 58.15	+ 1 45.54	61 27 47.59	39.249	12 26 32.42	22 34 8.34	1.54	11.34	61.75	61.85	62.45	58.85	61.23
39	.28	3.16					12 26 32.33	— 22 34	— 1.51			Mic.	39.213	—10	rdgs.
40			1 19.64	— 1 15.50	307 24 8.06	39.296									
41			1 19.20	1 15.58	7.44							May	9,	14.5h.	
42	— 22.59	3.14	1 19.08	1 15.65	7.35		1 4 38.26	+ 88 30 28.32	+ 22.21	11.50	61.3	61.7	62.7	59.5	61.30
43			1 19.36	1 15.69	7.59						61.2	61.4	62.2	58.4	60.80
44			1 19.23	— 1 15.72	7.43										
45	+ .01	3.14	2 2.71	+ 20.89	19 44 33.15		13 47 33.91	19 9 6.10	— 1.40	1.07	61.25	61.55	62.45	58.95	61.05
46	+ .03	3.12	1 17.40	20.00	18 55 41.25		14 8 50.77	+ 19 57 58.00	1.42	1.42					
47	— .23	3.11	2 6.70	1 21.26	54 18 34.04		14 42 37.02	— 15 24 54.79	1.76	3.08		Mic.	39.266	—10	rdgs.
48	18.99	3.10					14 51 15.53	+ 74 46	3.62						
49	2.06	3.10	2 57.17	1 4.34	47 43 8.01		15 8 58.18	— 8 49 28.76	1.69	+ 1.67					
50	6.32	3.08	+ 2 40.85	+ 1 57.85	63 37 43.72		16 6 44.96	24 44 4.47	1.88	— 1.89					
51	.30	3.07					16 20 14.84	26 5	1.88						
52	— .28	+ 2.62					12 26 32.37	— 22 34	— 1.49						

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
23	Moon	— 1 5.51		
35	Jupiter		1.43	

10. Observed for dec. at wire V.
14. Observed for dec. at wire VI.
18, 19, 25, 45, 46. Unsteady. 45, 46. Blurred.
26 to 31. Observed for dec. at 54m. 4s., 1m. 4s., 4m. 37s., 8m. 6s., 11m. 42s., and 15m. 12s.
40 to 44. Observed for dec. at 58m. 3s., 1m. 34s., 5m. 3s., 8m. 45s., and 12m. 4s.

DATE.	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.*	Mean.	Mic.		Barometer.	THER'S. At	Ex
1850			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
May 11	1	Polaris, S. P.						59.0	56.7		307 23 61.9	61.7	67.8	63.4	63.70	IV.	41.654			
	2						62.0								63.24		41.602	29.926	54.0	44.5
	3					59.0				13 4 59.89					62.78		41.639			
	4		63.0	61.0	58.5							58.8	60.7	67.4	62.4		62 32			
	5	η Ursæ Majoris	44.81	1.54	18.45	35.65	53.08	10.00	7.29	13 41 35.83	348 47 59.5	61.8	63.8	60.8	61.47		42.728	29.928	41.5	44.3
	†6	η Bootis	56.30	8.04	19.63	31.34	43.12	54.45	6.53	13 47 31.34	19 42 5.4	0.4	8.2	3.8	4.45		43.209	29.926	41.5	43.5
	7	α Bootis	13.07	24.71	36.35	48.00	59.63	11.20	23.00	14 8 47.99	18 51 4.8	1.2	10.0	3.2	4.80		46.830	29.928	41.2	43.2
13	†8	Venus, 1st & N.L.		14.09	25.92	37.95	49.90	1.81		4 36 37.93	16 11 60.8	50.5	57.8	56.1	56.30		44.258	29.972	68.0	73.2
	9	Venus, 1st & S.L															44.607			
	10	α Aurigæ	45.37	0.90	17.77	32.60	48.14	3.93	19.92	5 5 32.66										
	11	α Orionis	26.40	37.45	48.36	59.58	10.57	21.74	32.54	5 47 59.52										
18	†12	Polaris, S. P.						10.0	2.00		307 23 57.8	53.8	62.0	58.2	57.95		41.850	29.932	61.5	50.9
	13						11.0								57.34		41.845			
	14					13.0				13 5 10.79					56.73		41.882			
	†15		13.5	14.0	12.0							54.4	54.8	59.8	55.5		56.12		41.895	29.934	60.7	50.6
	†16	η Ursæ Majoris	50.70	7.42	23.85	41.95	59.30	15.70	32.89	13 41 41.69										
	†17	η Bootis	2.26	13.94	25.08	36.74	49.28	0.22	12.17	13 47 37.10										
	†18	α Bootis	18.72	30.55	42.19	53.70	5.45	17.28	28.73	14 8 53.80	18 53 59.5	53.5	58.5	55.5	56.75		41.820	29.950	58.5	47.8
	†19	β Ursæ Minoris	12.0	53.8	34.5	17.4	59.7	40.2	21.6	14 51 17.03										
	20	β Libræ	28.20	39.33	50.28	1.57	13.25	23.57	34.94	15 8 1.59	47 39 3.8	0.0	8.4	1.4	3.40		44.638	29.946	58.0	45.8
	21	Lalande, (28414)	29.30	41.06	52.72	4.88	17.17	28.50	40.60	15 28 4.89	61 29 61.0	58.7	65.7	58.9	61.07		39.737	29.950	57.0	45.3
	22	Lalande, (28466)		14.00	25.80	37.80	49.90	1.58	13.44	15 30 43.75							41.360	29.950	57.0	44.9
20	23	η Ursæ Majoris	50.35	7.31	24.47	41.50	59.53	15.62	32.70	13 41 41.64	348 48 0.2	0.8	1.6	0.4	0.75		42.662	30.067	61.0	52.6
	24	η Bootis		13.80	25.28	37.09	49.10	0.25	11.90	13 47 42.90										
	25	α Bootis	18.67	30.28	42.14	53.72	5.77	16.88	28.76	14 8 53.74	18 50 62.9	57.4	65.7	61.0	61.75		36.760	30.066	59.7	52.4
	26	ε Bootis	53.55	5.94	18.24	30.81	43.74	55.33	7.82	14 38 30.78	11 8 56.9	59.0	61.5	58.2	58.90		42.665	30.074	59.2	49.2
	27	α^2 Libræ	6.28	17.65	28.94	40.18	52.40			14 42 29.09										
	28	Lalande, (28414)	29.30	41.17	52.74	4.83	17.09	28.48	40.54	15 28 4.89	61 29 61.8	58.7	66.8	58.3	61.40		39.775	30.086	59.4	48.4
	29	Lalande, (28466)	1.97	13.85	25.70	37.66	49.98	1.54	13.57	15 30 37.75	61 29 58.2	55.5	63.0	55.5	58.05		41.390	30.086	59.4	48.4
	†30	ζ Ursæ Minoris	56.4	50.3	41.4	36.2	33.0	24.4	18.5	15 49 37.17	320 38 58.9	61.7	65.6	61.5	61.92		39.494	30.072	57.8	47.8
	31	δ Ophiuchi	1.39	12.37	23.15	33.94	45.52	56.27	7.08	16 6 34.25	42 5 59.7	57.3	62.9	58.0	59.48	V.	37.835	30.074	57.0	48 0
June 3	†32								57.0		307 23 52.8	63.8	66.3	64.2	61.78	IV.	41.850	30.178	68.8	66.8
	33							10.0							61.97		41.738			
	34						8.0								62.16		41.690			
	35														62.36		41.648			
	†36	Polaris, S. P.				10.0				13 5 9.71		55.2	64.7	66.8	63.5	62.55		41.579			65.6
	37															62.43		41.610			
	38				11.5											62.31		41.704			
	39			14.5												62.19		41.780			
	†40		17.0									53.5	63.5	67.2	63.8	62.07		41.920	30.184	68.9	65.7
	41	12 Libræ			33.36	45.38	57.48	9.33	21.90	14 45 57.49	62 50 54.4	46.4	56.0	55.0	52.95		43.862	30.190	67.3	61.0
	42	1 Lupi	56.10	8.95	21.35	34.20	47.20	59.97	13.13	15 5 34.41	69 47 55.4	57.6	58.8	59.4	57.80		40.350	30.190	67.2	60.9
	43	β Libræ		40.44	52.58	3.70	14.73	26.10	37.34	15 9 9.15										
	44	Arger'sZ., 209, 54								15 23	60 17 54.5	50.8	56.7	56.7	54.68		41.435	30.188	67.0	61.0
	45	Lalande, (28446)								15 29	61 27 0.9	2.3	4.8	1.3	2.32		36.219	30.188	67.0	61.0
	46	ζ Ursæ Minoris		52.16	46.74	40.80	34.60	28.25	23.70	15 50 7.71	320 39 0.9	14.0	15.0	13.1	10.75		39.350	30.190	66.8	60.4
	47	δ Ophiuchi	3.63	14.73	25.53	36.65	47.68	58.74	10.03	16 6 36.71	42 9 3.0	3.7	6.8	7.2	5.19		42.785	30.190	66.5	59.8
	48	Arger'sZ., 126, 47		24.95	4.77		20.78	0.94	38.00	17 4 5.89	325 24 0.0	11.4	9.4	9.0	7.45	V.	39.685	30.184	58.3	66.0
	49	Arger'sZ., 126, 48	42.73	20.52		38.58	16.77	54.73	35.13	17 4 44.74						IV.	37.910	30.184	58.3	66.0
	50	γ Draconis	22.24	39.74	57.16	15.08	32.77	50.54	8.55	17 53 15.15	347 21 1.5	13.0	12.5	11.0	9.50	IV.	43.432	30.188	65.2	57.3
	51	α Lyræ	17.14	30.90	44.96	58.90	13.03	26.75	41.28	18 31 58.99										
4	52	Polaris, S. P.	14.0	16.0	17.0	10.0	13.0	13.0	56.5	13 5 11.36										

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
May 11, 13	s 2.616	g .001	− .325	+ .389	+ .191			
13, 5	s 2.812	l .005				− 0.95		
18, 14	f 3.210	g .055						
20, 14	f 3.186	l .051						
June 3, 17	f 5.811	g .062	+ .117	+ .086	+ .170			
4, 14	f 5.854	g .020						
5, 16	f 5.248	l .021				− 0.55		

1 rev. = 34″.356

6. Wire III, recorded 11s.63.

May 21. Raised the instrument by means of hook and pulleys, and reversed it.

May 21 to June 3. Observed for error caused by difference of pivots, and for error of collimation. Reversed at transits of circumpolar stars, and at observations made over quicksilver surface with collimating eye-piece.

June 3. Adjusted the instrument in fixed position, circle W.

No. for ref.	COR. IN R.A. Inst.	COR. IN R.A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED. R. A.	OBSERVED. DEC.	REDUCTION TO 1850.0. R. A.	REDUCTION TO 1850.0. DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″					
1			+ 14.42	— 1 16.63	307 24 1.49	39.420									
2			14.47	1 16.63	1.08										
3	— 22.59	+ 2.62	0 14.46	1 16 63	0.61		1 4 38.92	+ 88 30 21.94	+ 20.99	+ 12.15		May	11,	14.5h.	
4			15.90	1 16.63	1.59						58.7	59.7	62.4	56.7	59.38
5	+ .44	2.62	1 53.65	— 11.62	348 49 43.50	39.420	13 41 38.89	50 3 55.75	— 1.54	— 4.94	58.4	59.4	61.3	57.5	59.15
6	.01	2.62	2 10.17	+ 21.14	19 44 35.76		13 47 33.97	19 9 3.49	1.40	+ 0.76					
7	.02	2.62	4 14.57	20.21	18 55 39.58		14 8 50.63	19 57 59.67	— 1.42	1.10	58.55	59.55	61.85	57.10	59.26
8	.02	2.81	2 50.30	14.72	16 15 1.32	39.301	4 36 41 13	22 38 31.91				Mic.	39.442	—10	rdgs.
9			3 2.30	+ 14.76	16 15 13.36										
10	.35	2.81					5 5 35.82	45 50	+ 1.17						
11	— .08	+ 2.82					5 47 2.26	7 22	0.77			May	13,	9h.	
12			1 26.57	— 1 15.63	307 24 8.89	39.325					60.0	61.1	60.8	55.2	59.28
13	— 22.57	— 3.16	1 26.58	1 15.65	8.27		13 4 45.06	88 30 29.22	+ 17.10	13.42	60.7	60.8	61.3	54.4	59.30
14			1 27.60	1 15.67	8.66						60.3	60.8	60.6	55.4	59.27
15			1 27.61	— 1 15.68	8.05										
16	+ .44	3.19					13 41 38.94	50 3	— 1.50		60.33	60.90	60.90	55.00	59.28
17	.01	3.20					13 47 33.91	19 9	1.41						
18	.02	3.22	1 25.71	+ 20.02	18 55 42.48		14 8 50.60	19 57 56.77	1.45	0.10		Mic.	39.280	—10	rdgs.
19	+ 1.83	3.26					14 51 15.60	+ 74.46	3.48						
20	— .19	3.27	3 2.53	1 4.33	47 43 10.26		15 8 58.13	— 8 49 31.01	1.78	1.39		May	18,	14.5h.	
21	.28	3.29	14.15	1 47.68	61 32 2.90		15 28 1.32	22 38 23.65	2.01	0.96	0.8	0.9	3 0	0.0	1.18
22	— 6.21	3.29	1 9.91	+ 1 47.84	61 32 58.82		15 30 34.25	— 22 39 19.57	2.01	+ 0.81	1.5	1.4	3.7	0.0	1.65
23	+ .44	3.20	1 54.09	— 11.46	348 49 43.38	39.341	13 41 38.88	+ 50 3 55.87	1.48	— 7.17	1.4	1.5	3.5	0.0	1.60
24	— 5.78	3.20					13 47 33.92	19 9	1.39						
25	+ .02	3.18	4 22.36	+ 19.91	18 55 44.02		14 8 50.58	19 57 55.23	1.43	0.37	1.23	1.27	3.40	0.00	1.48
26	.10	3.15	1 54.19	11.56	11 11 4.65		14 38 27.73	+ 27 42 34.60	1.55	— 2.46		Mic.	39.282	—10	rdgs.
27	+ 11.16	3.15					14 42 37.10	— 15 25	1.83						
28	— .28	3.11	14.90	1 47.49	61 32 3.79		15 28 1.50	22 38 24.54	2.02	+ 1.05					
29	— .28	3.11	1 10.39	+ 1 47.56	61 32 56.00		15 30 34.36	— 22 39 16.75	2.02	+ 0.89		May	20,	15h.	
30	+ 2.48	3.09	5.25	— 48.04	320 38 19.13		15 49 36.56	+ 78 15 20.12	5.05	— 5.33	59.4	59.3	60 4	56.9	59.00
31	— .16	3.08	4 59.29	+ 53.04	42 11 51.81		16 6 31.01	— 3 18 12.56	— 1.73	— 1.05	58.4	59.2	60.2	56.9	58.68
32			1 9.58	— 1 13.92	307 23 57.44	39.548					58.4	58.9	60.7	57.3	58.82
33			1 9.10	1 13.97	57.10										
34			1 11.27	1 14.01	59.42						58.73	59.13	60.43	57.03	58.83
35			1 11.69	1 14.06	59.99										
36	9.70	5.57	1 9.77	1 14.10	58.22		13 5 54.44	+ 88 30 19.49	+ 6.63	+ 16.01		Mic.	39.375	—15	rdgs.
37			1 10.13	1 14.09	58.47										
38			1 11.36	1 14.09	59.58							June	3,	11.6h.	
39			1 11.39	1 14.08	59.50						55.8	63.0	63.2	63.1	61.27
40			1 10.91	—1 14.08	58.90						56.3	63.2	62.1	63.0	61.15
41	— 11.73	5.67	2 28.23	+ 1 51.47	62 55 12.65		14 45 40.09	— 24 1 33.40	— 2.01	4.46	56.3	62.8	62.5	62.9	61.13
42	+ .26	5.69	27.57	2 34.54	69 50 59.91		15 5 28.98	30.57 20.66	2.23	4.07					
43	— 5.27	5.69					15 8 58.19	8 49	1.83		56.13	63.00	62.60	63.00	61.18
44		5.71	+ 1 4.85	1 40.21	60 20 39.74		15 23	21 27 0.49		1.70					
45		5.72	— 1 54.35	+ 1 44.81	61 26 52.78		15 29	— 22 33 13.23		+ 1.42		Mic.	39.511	—20	rdgs.
46	— 25.56	5.74	— 6.78	— 47.03	320 38 16.94		15 49 36.41	+ 78 15 22.31	4.67	— 9.63					
47	+ .28	5.75	+ 1 51.23	+ 52.02	42 11 48.44		16 6 31.24	— 3 18 9.19	1.88	2.11					
48	— 22.02	5.81	5 54.07	— 39.05	325 29 22.47		17 3 38.06	+ 73 24 16.78	4.11	5.10					
49	— 5.49	5.81	55.89	39.20	325 22 32.36		17 4 33.44	73 31 6.89	4.14	5.05					
50	+ .50	5.86	+ 2 13.45	— 12.92	347 23 10.03		17 53 9.79	51 30 29.22	2.34	1.95					
51	+ .40	5.91					18 31 53.48	38 38	— 2.00						
52	— 9.70	— 5.83					13 5 55.83	+ 88.30	+ 5.72						

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
	Venus -	+ 0.37		6.02

1 to 4. Observed for declination at 58m. 2s., 1m. 30s., 8m. 34s., and 12m. 5s.
2, 3, 13, 14, 33, 34, 35, 37, 38, 39. Circle readings obtained by interpolating.
8. —″.02 applied for defective illumination.
12 to 15. A little unsteady; observed for declination at 2m. 59s., 5m. 13s., 7m. 0s., 8m. 43s.
16. Poor observation.
17, 18. Very unsteady.
19, 30. Observed by counting beats of armature to electro-magnet.
19. Unsteady. 30. Blurred.
32 to 40. Observed for declination at 51m. 20s., 54m. 50s., 58m, 16s., 2m. 0s., 5m 18s., 8m. 45s, 12m. 17s., 15m. 57s., 19m. 25s.

DATE.	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THER'S. At.	Ex.
1850.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ″ ″	″	″	″	″			In.	°	°
June 4	1	η Ursæ Majoris	52.79	9.87	26.62	43.94	0.92	18.18	35.78	13 41 44.01										
	2	θ Centauri	19.13		46.00	59.69	12.90	26.58	40.47	13 57 4.13										
5	3	η Ursæ Majoris			26.37	43.72	0.45	17.60	35.35	13 41 0.70										
	4	η Bootis	3.96	15.52	27.17	38.79	50.28	1.98		13 47 32.95	19 42 9.1	8.3	14.8	14.4	11.65	IV.	41.785	30.368	73.0	68.8
	5	θ Centauri	18.83	32.21	45.57	59.33	12.72	26.24	40.17	13 57 59.29	74 28 52.8	47.3	53.0	51.2	51.08		40.865	30.366	73.0	68.8
	6	α Bootis	20.68	32.61	43.77	55.53	7.14	18.66	30.90	14 8 55.61	18 53 21.8	17.5	26.5	21.7	21.87		41.858			68.8
	7	4 Libræ		16.54	28.74	40.74	52.83	4.77	17.27	14 34 46.81	63 11 59.0	58.1	63.4	61.5	60.50		40.470	30.364	72.4	68.8
	8	12 Libræ	8.95	20.82	32.82	44.95	56.84	8.86	21.32	14 45 44.93	62 51 2.2	1.5	6.0	3.8	3.37		42.473			68.6
	9	59 Hydræ		29.52	41.88	54.24	6.50	18.85	31.52	14 50 0.42	65 54 16.7	17.4	20.9	19.0	18.50		39.168			68.7
	10	β Libræ	29.87	40.93	52.14	3.18	14.28	25.44	36.76	15 9 3.23	47 41 46.8	40.7	48.4	47.8	45.92		39.134	30.358	71.2	67.8
	11	Argel's Z., 209.54								15 23	60 14 60.4	56.0	63.2	61.7	60.32		45.562			67.8
	12	Lalande, 28446								15 29	61 24 21.8	18.1	25.8	25.2	22.72		39.738	30.352	71.2	67.5
	13	α Scorpii	43.42	55.84	7.92	20.14	32.25	44.52	57.18	16 20 20.18	64 51 11.6	8.0	16.2	12.8	12.15		38.515	30.366	71.0	65.8
	14	2404 Groombridge			6.94	44.88		59.72	39.35	16 57 22.72	325 45 2.4	11.0	14.7	11.7	9.95		38.340	30.356	70.4	65.9
	15	2411 Groombridge		9.00	48.03	25.71		42.50	21.32	16 59 41.31						III.	42.850			
	16	Argel's Z., 126.47	46.62	25.43	3.80	42.08	20.10	59.50		17 3 22.92						II.	37.415			
	17	α Ophiuchi	31.56	42.66	53.73	5.17	16.23	27.56	39.33	17 28 5.18										
	18	γ Draconis	21.85	39.53	56.88	14.36	32.08	49.73	8.00	17 53 14.63										
	19	μ^1 Sagittarii	19.14	30.92	42.69	54.52	6.07	17.92	29.08	18 4 54.33										
10	20	β Libræ	28.77		51.04	1.97	13.27	24.38	35.70	15 9 5.85	47 38 57.8	51.0	60.4	59.9	57.27	IV.	44.072	29.986	70.0	66.5
	21	α Serpentis	25.45		47.46	58.53	9.46	20.47	32.17	15 35 2.26										
	22	ζ Ursæ Minoris	57.89	51.08	44.94	39.44	32.85	26.63	22.22	15 49 39.29	320 38 59.5	63.5	71.0	66.8	65.20		38.290	30.000	69.7	65.0
	23	Feder's Lal., 2761	11.05	45.18	20.25	52.92				16 15 1.08	327 29 56.3	64.9	68.8	67.8	64.45		33.228	30.000	69.5	64.1
	24	Feder's Lal., 2762	20.15	54.56	28.03					16 14 54.25							37.628	30.000	69.5	64.0
	25	μ^1 Sagittarii	18.20	30.06	41.84	53.45	5.26	17.02	29.33	18 4 53.59										
	26	δ Ursæ Minoris		52.5	56.4						312 17 56.2	61.8	66.5	63.8	62.08		39.738			
	27					2.2				18 21 2.02							39.755	30.004	68.0	60.8
	28						8.0	11.0									39.740			
	29	α Lyræ	15.56	29.68	43.52	57.67	11.48		40.30	18 31 53.03	0 8 55.0	60.3	66.2	64.2	61.42	V.	38.270	30.004		
	30	β Lyræ	59.26	12.25	25.36	38.44	51.24	4.30	18.23	18 44 38.44										
13	31	Polaris, S. P.	19.5	21.0	19.5	19.00	18.0	18.5	3.0	13 5 16.93										
	32	α Virginis	48.20	59.28	10.45	21.73	32.82	44.00	55.37	13 17 21.69										
24	33	Lalande, 28446					56.45	8.44	20.50	15 30 8.46	61 21 12.2	6.4	11.0	8.0	9.40	IV.	46.000	30.070	72.7	70.8
	34	β^1 Scorpii		11.33	22.86	34.63	46.22	58.33	10.50	15 56 40.64										
	35	δ Ophiuchi								16 6	42 9 7.8	5.1	10.0	11.1	8.50		42.094	30.068	76.8	70.4
	36	α Scorpii								16 20	64 54 14.9	10.4	12.7	11.2	12.30		44.382	30.066	76.0	69.4
	37	5632								16 40	72 49 60.5	49.8	54.8	52.0	54.27		41.792	30.062	75.3	68.6
	38	ε Ursæ Minoris								17 1	316 35 56.0	58.8	61.7	60.8	59.32		42.052	30.064	75.0	67.9
	39	5851								17 12	63 40 65.2	53.8	62.0	55.7	59.17		41.225	30.064	74.5	67.7
	40	5915								17 23	75 44 60.5	55.0	58.3	58.5	58.08		36.135	30.064	74.5	67.2
	41	6077								17 49	62 35 60.4	54.8	59.5	57.5	58.05		45.219	30.058	73.8	67.0
Aug. 7	42	δ Ursæ Minoris			5.5	13.5	16.5	22.0		18 22 44.38										
	43	δ Aquilæ			8.13	19.05	29.97	41.06	52.41	19 19 30.12										
	44	γ Aquilæ	57.47	8.65	19.82	30.94	41.97	53.15	4.64	19 39 30.95										
	45	α Aquilæ		28.80	39.93		2.08	13.10	24.75	19 44 57.73										
	46	β Aquilæ	46.91	57.88	8.85	19.84	30.85	41.94	53.29	19 48 19.94										
9	47	β Draconis			13.95	31.97	49.82	7.96	26.55	17 27 50.05										
	48	6066								17 47	62 45 4.7	0.5	4.8	2.3	3.08		41.499	29.991	84.0	80.4
	49	μ^1 Sagittarii								18 4	59 53 64.7	59.7	61.2	61.8	62.00		45.067	29.888	83.8	79.7
	50	δ Ursæ Minoris		7.8	12.0	17.8	23.2	27.2		18 21 17.60										
	51	β Lyræ								18 44	5 39 5.0	5.3	6.0	5.0	5.32		43.370	29.894	83.2	79.5
	52	6521								18 57	66 41 61.8	56.8	60.6	60.0	59.80		43.270	29.884	83.2	79.5

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
June 5, 16	f 5.248	l .021	+ .117	+ .086	+ .170	+ 0.55		
10, 17	4.269	g .055						
13, 13	f 2.870							
24, 16	s 10.300					+ 0.35		
Aug. 7, 20	f 21.439	g .147	+ .375	+ .024	+ .118			
9, 19	28.257	l .003						

1 rev. = 34.″356.

June 12, 13h. Adjusted alidade, micrometer head and microscopes.

COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic. Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
+ 0.48	− 5.84					13 41 38.65	+ 50 4	+ 1.25						
− 4.25	5.85					13 57 54.03	− 35 38	1.29						
− 16.62	5.30					13 40 38.78	+ 50 4	1.23	− 10.39		June	3,	18.3h	
+ 6.18	5.30	+ 1 58.11	+ 20.37	19 44 30.13	38.347	13 47 33.83	+ 19 9 9.12	− 1.29	3.00	55.5	62.3	59.4	62.1	59.83
.26	5.29	1 26.50	3 21.64	74 33 39.22		13 57 54.06	− 35 39 59.97	1.28	+ 10.14	56.7	62.9	62.4	62.7	61.17
+ .33	5.29	2 0.62	19.47	18 55 41.96		14 8 50.65	+ 19 57 57.29	1.35	− 2.85	56.4	63.3	62.8	63.8	61.57
− 5.76	5.28	1 12.93	1 51.99	63 15 5.42		14 34 35.77	− 24 21 26.17	1.96	+ 5.29	56.20	62.83	61.53	62.87	60.86
+ .26	5.28	2 21.75	1 50.48	62 55 15.60		14 45 39.91	24 1 36.35	1.99	5.75					
− 5.90	5.27	28.20	2 6.26	65 56 52.96		14 49 49.25	27 3 13.71	2.07	4.74		Mic.	39.524	−10	rdgs.
+ .28	5.27	27.28	1 2.44	47 43 15.64		15 8 58.24	8 49 36.39	1.82	0.63					
	5.26	4 7.87	1 39.40	60 20 47.59		15 23	21 27 8.34		1.74		June	5.		
	5.26	47.78	1 44.04	61 26 54.54		15 29	22 33 15.29		+ 1.48	0.2	1.4	6.3	5.5	3.35
+ .26	5.24	5.76	+ 2 1.58	64 59 19.49		16 20 15.20	− 26 5 40.24	2.23	− 1.49	0.0	1.9	5.9	6.5	3.57
− 36.94	5.23	+ 0.25	− 38.85	325 44 30.85		16 56 40.55	+ 73 9 8.40	4.01	6.16	0.5	1.4	6.7	6.2	3.70
− 14.34	5.23	−12 0.27	39.14	325 32 30.54		16 59 21.74	73 21 8.71	4.06	5.10					
+ 20.37	5.23	−15 7.00	− 39.23	325 29 23.72		17 3 38.06	73 24 15.53	4.10	− 5.49	0.23	1.57	6.30	6.07	3.54
.31	5.22					17 28 0.27	12 40	1.86			Mic.	38.244	−10	rdgs.
.50	5.21					17 53 9.92	+ 51 30	2.36						
+ .27	5.21					18 4 49.39	− 21 5	2.04			June	10,	17h.	
− 3.43	4.17	+ 3 19.39	+ 1 1.83	47 43 18.49	38.268	15 8 58.25	− 8 49 39.24	1.83	+ .44	56.4	57.7	61.8	61.8	59.42
− 3.39	4.19					15 35 54.68	+ 6 54	1.77		56.4	57.2	61.5	62.0	59.28
+ 1.37	4.20	+ 74	− 46.31	320 38 19.63		15 49 36.46	78 15 19.62	4.41	− 11.64	55.8	58.1	61.8	60.9	59.15
51.99	4.22	11 43.08	35.79	327 41 11.74		16 15 48.85	71 12 27.51	3.32	9.94					
69.21	4.22	5 29.04	35.94	327 34 57.55		16 15 59.24	+ 71 18 41.70	3.34	9.94	56.20	57.67	61.70	61.56	59.28
.27	4.27					18 4 49.59	− 21 5	2.14						
		51.68	1 2.52	312 17 51.24							Mic.	38.289	−10	rdgs
5.42	4.29	51.09	1 2.52	50.65		18 21 3.15	+ 86 35 48.22	19.13	2.35					
		51.63	− 1 2.52	51.19							June	12,	13.5h	
5.07	4.35	5 51.09	+ 0.25	0 14 52.76		18 31 53.75	38 38 48.07	2.12	− 3.05	1.4	1.3	3.0	3.9	2.40
+ .38	4.37					18 44 34.45	33 11	2.02		1.1	1.9	3.5	2.9	2.35
										1.3	2.2	3.6	3.0	2.52
− 9.70	− 2.87					13 5 4.36	+ 88 30	1.27						
+ .27						13 17	− 10 22	1.36		1.27	1.80	3.37	3.26	2.42
− 23.54	+ 10.30	4 2.77	1 42.42	61 26 54.59	38.934	15 29 55.22	22 33 15.34	2.33	+ 1.86					
5.55						15 56	19 23				Mic.	38.966	−10	rdgs.
		1 48.58	50.73	42 11 48.21		16 6	3 18 8.96		− 1.38					
											June	24,	15h.	
		3 7.18	1 59.49	64 59 18.97		16 20	26 5 39.72		0.75	1.0	1.5	1.9	2.0	1.60
		1 38.20	+ 3 0.00	72 54 32.47		16 40	− 34 0 53.22		0.98	1.1	1.2	1.2	1.7	1.30
		1 47.13	− 53.13	316 36 53.32		17 1	+ 82 16 45.93		11.94	0.8	0.8	1.0	0.9	0.88
		1 18.72	+ 1 53.44	63 44 11.33		17 12	− 24 50 32.08		4.30					
		4 14.89	3 39.03	75 52 52.00		17 23	36 59 12.75		4.23	0.97	1.17	1.36	1.53	1.26
		3 35.94	1 48.59	62 41 22.58		17 50	− 23 47 43.33		6.57					
1 28.58	− 20.81					18 20 54.91	+ 86 35	10.90			Mic.	38.897	−10	rdgs.
− 10.49	21.34					19 17 58.29	2 49	2.36						
+ .50	21.39					19 39 10.06	10 15	2.38			Aug.	9,	19.5h	
− 6.14	21.40					19 43 30.19	8 28	2.41		4 0	4.2	4.6	4.7	4.38
										4.0	4.5	4.8	4.4	4.42
+ .50	21.41					19 47 59.03	6 2	2.40						
− 17.38	28.26					17 27 4.41	+ 52 25	1.73		4.00	4.35	4.70	4.55	4.40
	28.26	1 31.47	1 46.10	62 48 20.65	38.837	17 47	− 23 54 41.40		5.58					
	28.26	3 34.05	1 34.28	59 59 10.33		18 4	− 21 5 31.08		7.31		Mic.	38.709	−5	rdgs.
+ 3.79	28.26					18 20 53.13	+ 86 35	− 10.31						
	28.26	2 35.75	5.46	5 41 46.53		18 44	+ 33 11 52.72		18.64					
	− 28 26	+ 2 32.31	+ 2 6.50	66 46 38.61		18 57	− 27 52 59.36		− 8.75					

DATE	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THER'S At.	THER'S Ex.
1850.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″			In.	°	°
Aug. 9	1	α Aquilæ - - -	24.60	35.72	46.69	57.71	9.12	20.10	31.51	19 43 57.92						IV.				
	2	β Aquilæ - - -	53.72	4.66	15.67	26.72	37.71	48.66	0.28	19 47 26.77										
	3	α^2 Capricorni - -								20 9	51 50 64.0	56.6	59.0	62.2	60.45		41.627	29.876	82.5	78.5
	4	α Cygni - - - -		18.63	34.12	49.66	4.82	20.63	36.33	20 37 57.37										
16	5	μ^1 Sagittarii - - -	46.95	58.57	10.49	22.29	34.08	45.74	57.90	18 5 22.29										
	6	δ Ursæ Minoris -	6.3	12.2	15.0	22.0	23.2	27.3	39.5	18 21 20.79										
	7	α Lyræ - - - -	43.70	57.84			39.88		8.53	18 32 22.49										
	8	β Lyræ - - - -	27.63	40.72	53.88	6.90	20.10	33.10	46.60	18 45 6.99										
26	9	β Lyræ - - - -		38.93	52.10	5.28	18.48	31.58	44.95	18 45 11.89										
	10	ζ Aquilæ - - -	30.09	41.37	52.76		15.44	26.25	38.22	18 59 4.02										
	11	δ Aquilæ - - -	56.30	7.15	18.12	29.28	40.10	51.10	2.50	19 18 29.22										
	12	α Aquilæ - - -	27.72	38.72	50.06	1.15	12.25	23.28	34.83	19 44 1.14										
Sept. 6	†13								39.5		307 25 33.1	31.5	39.2	33.7	34.38		38.805	30.090	80.2	80.6
	14							57.0							34.35		.715			
	15						57.0								34.52		.665			
	†16	Polaris, S. P.				57.0				13 5 56.29					34.60		.650	30.088		81.0
	17				61.0										34.68		.670			
	18			61.5											34.75		.740			
	†19		61.0								33.9	31.8	39.7	33.9	34.82		38.860	30.088	80.0	81.4
	20	η Ursæ Majoris -	34.13	51.07	7.91	25.18	42.15	59.25	16.98	13 41 25.23										
	21	δ Ophiuchi - - -	46.07	57.22	7.96	19.15	30.35		52.78	16 6 15.59										
	22	α Scorpii - - -	26.49	38.66	50.89	3.04	15.20	27.45	40.06	16 20 3.11										
16	23	γ Aquilæ - - -	23.40	34.45	45.57	57.04	7.97	19.15	30.50	19 38 56.87										
	24	α Aquilæ - - -	43.60	54.78		17.00	28.30	39.31	50.75	19 43 18.96										
	25	Moon, 1st L. -	13.19	25.08	36.59	48.48	0.48	12.10	24.40	20 25 48.90										
	26	η Capricorni - -	6.16	17.95	29.53	41.16	52.80	4.48	16.76	20 55 41.26										
17	27	ζ Aquilæ - - -	45.63	56.88	8.24	19.55	30.82	42.03	53.78	18 58 19.56	25 14 17.0	13.0	15.4	14.0	14.85		38.963	30.116	65.0	57.8
	28	δ Aquilæ - - -			33.77	44.88	55.63	6.84	18.23	19 17 55.87	36 5 62.0	57.7	57.9	60.7	59.57		34.550	30.120	65.0	57.6
	29	γ Aquilæ - - -		34 10	45.30	56.42	7.60	18.73	30.22	19 38 2.08	28 35 61.0	57.5	60.8	63.6	60.72		41.940	30.122	64.8	57.4
	30	α Aquilæ - - -	43.50	54.74	5.64	16.74	27.90	38.53	50.25	19 43 16.76	30 23 62.0	58.3	57.7	62.3	60.08		39.329	30.122	64.8	57.4
	†31	α^2 Capricorni - -	59.18	10.18	21.49	32.60	44.08	55.11	6.77	20 9 32.77	51 47 62.2	55.2	56.4	58.0	57.95	V.	46.952	30.118	64.5	55.9
	32	γ Capricorni - -					52.72	4.12	16.94	20 55 4.59										
	33	ν Aquarii - - -	40.92	51.98	3.43	14.66	25.39	36.72	48.26	21 1 14.48	50 49 22.2	15.0	20.2	15.7	18.22	IV.	41.378	30.114	64.0	52.8
	†34										55 52 45.7	42.8	45.2	46.1	44.95		39.956			
	†35	Moon, 1st & S. L.	37.95	49.25	0.91	12.70	24.09	36.06	48.29	21 16 12.75							39.904			
	†36																39.875			
	37	δ Capricorni - -	0.38	11.59	23.09	34.65	46.14	57.59	9.23	21 38 34.67	55 38 60.0	53.0	57.8	59.0	57.45		41.220	30.102	63.0	53.0
21	38	δ Aquilæ - - -	9.18	19.88	31.13	41.98	53.07	4.02	15.45	19 17 42.10	36 2 66.6	57.8	61.8	63.0	62.30		39.795	30.236	70.4	65.2
	39	γ Aquilæ - - -					4.79	15.88	27.58	19 39 16.08	28 35 62.2	57.8	59.6	62.7	60.58		42.080			63.8
	40	α Aquilæ - - -	40.55	51.55	2.77	13.88	24.88	35.95	47.57	19 43 13.88	30 20 63.8	58.4	60.4	63.6	61.55		44.63			63.4
	41	β Aquilæ - - -	9.85		31.67	42.68	53.64	4.78	16.20	19 47 46.47										
	42	α^1 Capricorni - -	32.33	43.48	54.83	5.98	17.42	28.67	40.16	20 9 6.12										
	†43	α^2 Capricorni - -	56.05	7.48	18.68	29.86	41.22	52.47	3.99	20 9 29.96	51 50 59.9	50.4	55.0	57.5	55.70		41.910	30.234	68.8	61.8
	44	α Cygni - - - -	19.44	34.68	49.99	5.53	21.19	36.47	52.52	20 36 5.67	354 5 59.5	61.3	60.7	61.0	60.62		43.503	30.236	67.8	61.4
	45	ζ Cygni - - - -	42.09	54.62	7.04	19.88	32.27	44.88	57.95	21 6 19.82	9 10 51.2	45.2	46.8	50.0	48.30		41.600	30.242	67.1	59.4
	46	α Cephei - - -		0.41	23.55	47.08	9.74	33.57	58.04	21 15 58.73										
	47	β Cephei - - -	54.93	26.60	57.89	30.33	1.88	34.05	7.14	21 26 30.40										
	48	α Gruis - - - -	43.04	59.32	15.84	32.08	48.59	5.00	21.67	21 58 32.22										
	49	7861 - - - -	25.77	36.94	47.78	59.05	10.24	21.30	33.00	22 25 59.15	49 17 62.8	53.7	56.6	58.5	57.90		39.120	30.252	66.8	57.8
	50	Neptune - - -	44.93	56.04	7.33	18.29	29.43	40.58	52.24	22 28 18.41							44.187	30.253	66.8	57.8
	†51	α Piscis Australis -	29.73	42.49	54.96	8.12	20.45	33.04	46.44	22 49 7.89										
23	52	Polaris, S. P. -	61.0	61.0	59.0	58.0	58.0	56.0	36.0	13 5 55.57										

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of Runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs
Aug. 9, 19	f 28.257	l .003	+ .375	+ .024	+ .118			
16, 18	32.930	.000						
26, 19	f 31.528	.001						
Sept. 6, 15	s 10.796	.012				— .168		
16, 20	12.280	.025						
17, 20	12.567	l .021				+ 0.75		
21, 20	15.326	g .012						
23, 18	s 15.591	l .005				— 0.48		

1 rev. = 34.″356.

31. Mic. recorded, 46.652.
34, 35, 36. Mic. recorded, 40,956, &c.

No. for ref	COR. IN R.A. Inst.	COR. IN R.A. Clock.	COR. IN DEC. Inst	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	+ 0.50	− 28.25					19 43 30.16	+ 8 28	− 2.40						
2	+ .50	28.25					19 47 59.02	+ 6 2	2.40						
3		28.25	+ 1 35.86	+ 1 9.72	51 53 46.03		20 9	− 13 0 6.78		− 14.37					
4	− 7.15	28.25					20 36 21.97	+ 44 45	2.87			Sept.	6,	18.8h	
5	+ .49	32.93					18 4 49.85	− 21 5	2.30		0.4	0.9	5.9	1.1	2.08
											0.9	0.9	6.8	0.7	2.32
6	2.77	32.93					18 20 50.63	+ 86 36	8.11		0.8	1.2	6.7	1.3	2.50
7	3.99	32.93					18 31 53.55	38 39	2.05						
8	+ .53	32.93					18 44 34.59	33 11	2.11		0.70	1.00	6.47	1.03	2.30
9	− 6.02	31.53					18 44 34.34	33 11	1.93						
10	+ .49	31.53					18 58 32.98	13 38	2.05			Mic.	38.924	−10	rdgs
11	.49	31.53					19 17 58.18	2 49	2.02						
12	+ .50	− 31.53					19 43 30.11	8 28	2.28						
13			− 11.83	− 1 11.75	307 24 10.77	38.991						Sept.	17,	20.5h	
14			11.88	1 11.73	10.84						0.9	1.9	2.2	1.4	1.60
15			11.69	1 11.71	11.12						0.7	1.4	2.0	1.6	1.42
16	− 5.09	+ 10.77	11.72	1 11.69	11.19		13 6 1.97	88 30 32.10	− 62.05	+ 3.52	0.80	1.65	2.10	1.50	1.51
17			12.03	1 11.68	10.97										
18			11.26	1 11.66	11.83							Mic.	38.934	−10	rdgs.
19			10.45	− 1 11.64	12.73										
20	+ .59	10.78					13 41 36.60	+ 50 4	+ .81						
21	4.14	10.81					16 6 30.54	− 3 18	− 1.15			Sept.	21.		
22	.50	10.81					16 20 14.42	− 26 5	1.50		2.4	4.2	3.1	3.4	3.28
23	+ .50	12.27					19 39 9.64	+ 10 15	2.00		2.9	2.4	3.8	4.1	3.30
24	− 1.36	12.27					19 43 29.87	+ 8 28	2.06		2.5	2.9	3.6	3.5	3.12
25	+ .50	12.29					20 27 5.97	− 18 16							
26	.49	12.30					20 55 54.05	− 20 27	2.50		2.60	3.17	3.50	3.67	3.23
27	+ .50	12.55	0.51	+ 27.13	25 14 41.47	38.978	18 58 32.61	+ 13 38 57.78	1.74	− 19.80		Mic.	38.845	−10	rdgs.
28	− 10.49	12.55	− 2 23.13	41.90	36 4 9.34		19 17 57.93	2 49 29.91	1.93	17.38					
29	− 5.07	12.56	+ 1 41.76	31.44	28 38 13.92		19 39 9.57	10 15 25.33	1.99	19.83					
30	+ .50	12.56	12.06	33.79	30 24 45.93		19 43 29.82	+ 8 28 53.32	2.04	19.56		Sept.	23,	19h.	
31	+ .49	12.57	4 33.95	1 13.46	51 53 45.36		20 9 45.83	− 13 0 6.11	2.28	14.23	2.5	2.5	5.0	4.9	3.72
32	− 23.02	12.59					20 55 54.16		2.49		3.1	2.4	5.0	5.0	3 88
33	+ .49	12.59	1 23.13	+ 1 11.23	50 51 52.64		21 1 27.56	11 58 13.39	2.44	15.96	3.5	2.2	5.0	5.5	4.05
34			33.07	−58 1.74	54 55 16.28										
35	.50	12.59	33.62	54 1.74	16.83		21 17 29.39	16 1 37.21			3.03	2.37	5.00	5.13	3.88
36			33.06	−58 1.74	16.27							Mic.	38.902	−10	rdgs.
37	.49	12.60	1 17.03	+ 1 24.83	55 41 39.31		21 38 47.76	− 16 48 0.06	2.57	15.62					
38	+ .49	15.33	29.41	41.44	36 4 13.15	38.939	19 17 57.92	+ 2 49 26.10	1.85	17.41					
39	− 21.83	15.33	1 47.91	31.18	28 38 19.67		19 39 9.58	10 15 19.58	1.91	19.97					
40	+ .50	15.33	3 15.52	33.52	30 24 50.59		19 43 29.71	8 28 48.66	1.96	19.89					
41	− 3.18	15.33					19 47 58.62	+ 6 2	1.98						
42	+ .49	15.32					20 9 21.93	− 13 0	2.20						
43	.49	15.32	1 42.07	+ 1 12.89	51 53 50.66		20 9 45.77	− 13 0 11.41	2.20	14.16					
44	.57	15.32	2 36.80	− 5.88	354 8 31.54		20 36 21.56	+ 44 45 7.71	2.32	26.04					
45	+ .52	15.31	1 31.42	+ 9.41	9 16 29.13		21 6 35.65	29 37 10.12	2.39	23.85					
46	− 10.99	15.31					21 15 3.05	61 57	3.24						
47	+ .78	15.30					21 26 46.48	+ 69 54	4.08						
48	.52	15.30					21 58 48.04	− 1 3	3.03						
49	.49	15.30	6.22	+ 1 6.98	49 16 10.95		22 26 14.94	10 22 31.70	2.57	− 17.47					
50	.49	15.30	+ 3 0.30	+ 1 6.89	49 19 5.24		22 28 34.20	10 25 25.99							
51	+ .50	15.29					22 49 23.68	− 30 25	2.70						
52	− 5.09	+ 15.56					13 6 6.04	+ 88 30	− 68.12						

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vertical.
		m. s.	m. s.	′ ″
25	Moon -	+ 1 4.28		
35	Moon -	1 3.55		
3	Venus -	+ 75		+ 11.60

13 to 19. Observed for dec. at 55m. 34s., 59m. 0s., 2m. 46s., 6m. 3s., 10m. 5s., 13m. 4s., 16m. 40s.
14 to 18. Circle readings interpolated.
34, 35, 36. Observed for dec. at 17m. 21s., 17m. 32s., and 17m. 43s.
43. Observed for dec. at 9m. 56s.
51. Too bright to be well observed. Forgot to replace the cap on telescope before observing.
52. Unsteady at wires IV, VI, VII.

DATE	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire IV.	Mic. Rev.	Barometer.	THER'S. At.	Ex.
1850.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″			In.	°	°
Sept. 25	1	α Virginis - - -		39. 33	50. 84	1. 88	13. 04	24. 10	35. 65	13 17 7. 47										
	2	α Bootis - - -	58. 22	9. 89	21. 50	33. 03	44. 76	56. 40	8. 58	14 8 33. 19										
	† 3	Venus, 1st & N. L.									58 11 60. 8	50. 7	56. 4	55. 5	55. 85		39. 352	30. 192	72. 7	74. 2
	† 4	Venus, 1st & S. L				0. 48	12. 27	23. 97	35. 82	14 53 18. 13							40. 010			
	† 5	δ Ursæ Minoris -	1. 0	8. 0							312 18 3. 8	6. 5	9. 3	6. 6	6. 55		39. 628	30. 160	72. 2	68. 5
	6				11. 5												39. 650			
	† 7					16. 4				18 20 18. 20							39. 674			
	8						22. 5										39. 632			
	† 9							28. 2	39. 8								39. 600			67. 5
	10	β Lyræ - - - -	38. 23	51. 67	4. 54	17. 94	30. 82	43. 86	57. 19	18 44 17. 75	5 41 62. 5	58. 2	63. 9	62. 9	61. 87		38. 472			
	11	6521, B. A. C. -	42. 97	55. 06	7. 45	20. 18	32. 44	44. 90	57. 63	18 57 20. 09	66 44 61. 2	55. 7	60. 9	60. 3	59. 52		38. 059			
	12	6727, B. A. C. -								19 31	62 38 62. 7	56. 0	61. 7	59. 2	59. 90		30. 152	30. 152	70. 5	62. 5
	13	γ Aquilæ - - -		31. 09	42. 09	53. 24	4. 60	15. 75	27. 23	19 38 59. 00										
	14	α Aquilæ - - -	40. 32	51. 45	2. 48	13. 60	24. 71	35. 86	47. 23	19 43 13. 67										
	15	β Aquilæ - - -	9. 48	20. 30	31. 24	42. 44	53. 74	4. 50	15. 95	19 47 42. 52										
	16	7458 - - - -								21 20	70 44 61. 7	54. 0	57. 2	57. 4	57. 58		37. 392	30. 132	66. 0	57. 5
	17	ε Pegasi - - - -	2. 26	12. 94	24. 20	35. 24	46. 20	57. 37	9. 01	21 36 35. 32	29 41 64. 8	58. 5	64. 0	62. 9	62. 55		37. 823	30. 136	65. 7	56. 0
	18	7714 - - - -	27. 54	40. 60	53. 65	7. 03	20. 48	33. 28	46. 88	22 1 7. 07	72 8 64. 2	57. 5	63. 8	62. 0	61. 88		36. 309	30. 138	65. 2	56. 9
	19	7750 - - - -	56. 79	9. 16	21. 74	34. 29	46. 93	59. 15	12. 10	22 6 34. 31	67 21 42. 3	37. 7	40. 5	42. 2	40. 68		38. 930	30. 136	65. 2	57. 0
	20	Neptune - - -	33. 54	44. 85	55. 85	6. 93	18. 22	29. 46	40. 75	22 28 7. 08	49 18 51. 0	45. 0	45. 7	50. 8	48. 12		39. 427	30. 140	67. 8	56. 7
	21	α Piscis Aust. - -									69 16 36. 9	32. 2	36. 4	34. 6	35. 01		37. 630	30. 138	64. 5	56. 7
25	†22	Polaris, S P. -	3. 0	2. 0	5. 0	0. 0	54. 0	54. 0	42. 0	13 5 57. 13										
	†23	δ Ursæ Minoris -	3. 5	8. 0	12. 3	18. 5	23. 0	28. 6	39. 0	18 20 18. 99										
	24	α Lyræ - - - -	54. 27	8. 10	22. 12	36. 00	49. 96	4. 24	18. 72	18 31 36. 20										
	25	β Lyræ - - - -	38. 04	50. 77	3. 97	17. 15	30. 25	43. 34	57. 00	18 44 17. 22										
	26	6521 - - - -					31. 98	44. 20	57. 00	18 57 44. 39										
28	27	Sun, 1st L. - -		20. 57	30. 57	42. 60	53. 75	4. 50	16. 05	12 17 48. 01										
	28	Sun, 2d L. - -	17. 79	28. 79	40. 24	51. 04	1. 82	12. 88	24. 44	12 19 51. 00										
	†29	Polaris, S. P. -							40. 0		307 23 58. 6	56. 1	60. 2	60. 1	58. 75		41. 930	29. 924	76. 0	75. 0
	30							58. 0									.880			
	31					59. 0	58. 0										.834			
	†32									13 5 57. 50							.780			75. 2
	33			63. 5	60. 5												.800			
	†34		3. 5														.875	29. 918		75. 4
	35	α Bootis - - - -				32. 14	43. 79	55. 58	7. 47	14 8 43. 88										
	36	5915 - - - -								17 23	75 48 59. 5	59. 0	61. 5	59. 0	59. 75		39. 820	29. 918	77. 0	72. 6
	†37	δ Ursæ Minoris -	1. 5	6. 5	10. 3						312 18 3. 5	2. 8	6. 2	2. 8	3. 82		39. 700	29. 918	77. 0	72. 0
	38					15. 2	21. 0			18 20 16. 70							39. 720			
	†39							25. 4									39. 670			
	†40								37. 0								39. 630	29. 912	76. 0	70. 8
	†41	α Lyræ - - - -	53. 25	7. 44	21. 19	35. 33	49. 36	3. 53	18. 09	18 31 35. 46	0 14 8. 5	2. 1	3. 8	4. 5	4. 72		39. 765	29. 916	76. 0	76. 0
	42	6521 - - - -	41. 72	54. 07	6. 46	19. 00	31. 45	43. 64	56. 58	18 57 18. 99	66 44 12. 5	2. 4	8. 0	8. 2	7. 78		39. 718	29. 926	75. 4	68. 5
	43	δ Aquilæ - - -	7. 71	18. 47	29. 66	40. 48	51. 53	2. 43	13. 65	19 17 40. 56	36 2 60. 0	48. 8	54. 5	56. 7	55. 00		40. 090	29. 934	74. 8	69. 4
	44	γ Aquilæ - - -	52. 31	3. 39	14. 35	25. 72	36. 61	47. 80	59. 30	19 39 25. 64	28 38 61. 8	53. 7	55. 0	59. 5	57. 50		36. 857	29. 942	75. 0	68. 0
	45	α Aquilæ - - -			34. 74	45. 66	56. 92	7. 80	19. 26	19 43 56. 88	30 23 58. 0	48. 4	52. 5	53. 8	53. 18		39. 624			
	46	β Aquilæ - - -	41. 63	52. 55	3. 68	14. 55	25. 63	36. 80	48. 00	19 47 14. 69	32 50 51. 0	46. 8	40. 0	47. 0	46. 20		38. 713	29. 950	74. 5	67. 8
	†47	α² Capricorni - -		38. 85	50. 58	1. 85	13. 08	24. 51	35. 94	20 10 7. 47	51 23 62. 2	53. 0	59. 0	58. 0	58. 05		36. 410	29. 960	74. 4	66. 1
30	†48	Sun, N. L. - -									41 41 63. 4	56. 3	60. 4	61. 8	60. 47	II.	39. 180	30. 406	65. 2	61. 3
	†49	Sun, S. L. - -									66. 4	59. 8	62. 5	64. 8	63. 37	VI.	44. 148	30. 400	65. 2	59. 9
Oct. 1	50	Sun, 1st & S. L.	31. 40	42. 78	53. 48	4. 44	15. 58	26. 55	38. 00	12 29 4. 60	42 5 59. 7	50. 8	57. 5	57. 7	56. 42	VI.	43. 025	30. 220	63. 4	63. 8
	51	Sun, 2d & N. L.	39. 92	51. 06	2. 10	12. 94	24. 05	35. 06	46. 56	12 31 13. 10	61. 5	53. 0	59. 5	60. 4	58. 60	II.	38. 131	30. 218	63. 9	65. 1

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c	Error of runs.	Mic. coin. At.	rev.
h.	s.	s.	s.	s.	s	″	h.	rev.
Sept. 23, 18	s 15. 591	l .005	+ .375	+ .024	+ .118	— 0. 48		
25, 18	15. 943	l .011						
28, 17	s 16. 800	l .024	+ .154	.000	+ .120	— 0. 37		
20	f 16. 435	l .077						
Oct. 1, 21	f 13. 820	l .019				— 0. 40		

1 rev. = 34″. 356

3, 4. Mic. recorded 38r.352 and 39r.010.
Sept. 25. Adjusted microscopes.

No. for ref	COR. IN R A. Inst.	COR. IN R A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic Zero	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Res.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	− 05.08	+ 15.57					13 17 17.96	− 10 22	− 0.31						
2	+ .51	15.57					14 8 49.27	+ 19 58	− 0.02						
3			+ 11.59	+ 1 20.46	58 13 27.90	39.015									
4	− 16.94	+ 15.58	+ 34.20	+ 1 21.05	58 13 51.10		14 53 17.01	− 19 20 0.25							
5			22.05	− 1 7.89	312 17 20.71	39.015						Sept.	28,	20h.	
6			22.53	1 7.92	21.16						61.3	61.4	59.3	61.9	60.98
7	+ 2.77	15.59	22.64	1 7.95	21.24		18 20 36.56	+ 86 36 18.61	+ 6.65	− 25.64	60.9	61.9	60.1	62.2	61 27
8			21.87	1 7.98	20.44						60.8	61.4	60.7	62.5	61.35
9			+ 21.14	− 1 8.02	19.67										
10	.53	15.59	− 18.64	+ 5.66	5 41 48.89		18 44 33.87	+ 33 11 50.36	− 1.34	24.25	61.90	61.57	60.03	61.20	61.20
11	+ .50	15.59	32.83	2 11.39	66 46 38.08		18 57 36.18	− 27 52 58.83	+ 2.02	4.43		Mic.	38.984	−10	rdgs.
12		15.60	1 18.66	1 49.75	62 39 30.99		19 31	− 23 45 51.74		− 9.32					
13	− 5.07	15.60					19 39 9.53	+ 10 15	1.88			Sept	30,	12h	
14	+ .50	15.60					19 43 29.77	8 28	1.92		2.0	3.3	6.5	4.4	4.05
15	.50	15.60					19 47 58.62	+ 6 2	1.93		1.8	3.4	6.6	5.1	4.23
16		15.60	55.75	2 43.39	70 46 45.22		21 20	− 31 53 5.97		11.09	2.0	4.1	6.6	4.8	4.37
17	.50	15.60	40.94	32.94	29 41 54.55		21 36 51.42	+ 9 11 44.70	2.44	20.66					
18	.50	15.61	1 32.95	2 56.87	72 10 25.80		22 1 23.18	− 33 16 46.55	2.72	12.49	1.93	3.60	6.57	4.76	4.22
19	.52	15.61	− 2.91	2 17.35	67 23 55.12		22 6 50.44	28 30 15.87	2.64	12.25		Mic.	39.001	−10	rdgs.
20	+ .51	15.61	+ 14.17	1 6.81	49 20 8.88		22 28 23.20	10 26 29.63							
21		15.61	− 47.57	+ 2 31.21	69 18 18.65		22 49	− 30 24 39.40		14.63					
22	− 5.09	15.89					13 6 7.93	+ 88 30	− 68.82						
23	+ 2.77	15.95					18 20 37.71	86 36	+ 7.46			Oct.	1,	14h.	
24	.55	15.95					18 31 52.70	38 39	− 1.13		59.7	59.8	61.3	61.4	60.55
25	+ .53	15.95					18 44 33.70	+ 33 11	1.29		57.5	59.7	60.2	60.2	59.40
26	− 24.36	15.95					18 57 35.98	− 13 58	1.98		57.8	59.2	60.1	59.0	59.02
27	− 5.21	16.68													
28	+ .27	16.68					12 19 3.51	− 1 58			58.40	59.57	60.53	60.20	59.67
29			+ 1 35.86	− 1 12.11	307 24 22.50	39.019						Mic.	39.188	−10	rdgs.
30			1 34.99	1 12.09	21.65										
31			1 34.86	1 12.08	21.53										
32	− 4.46	16.70	1 35.94	1 12.08	22.61		13 6 9.74	+ 88 30 42.75	− 69.69	− 4.23					
33			1 35.38	1 12.09	22.04										
34			1 35.02	− 1 12.09	21.68										
35	− 11.39	16.73					14 8 49.29	+ 19 58	+ 0.01						
36			27.52	+ 3 36.74	73 53 4.01		17 23	− 36 59 23.74		+ 0.37		Oct.	1,	23h	
37			24.45	− 1 0.99	312 17 27.28						59.0	61.6	62.2	63.0	61.45
38			24.36	1 1.02	27.16						60.0	62.4	62.9	63.7	62.25
39	+ 2.18	16.83	23.50	1 1.09	26.23		18 20 35.71	+ 86 36 12.87	+ 8.88	− 25.74	59.8	62.2	63.0	62.7	61.92
40			23.36	− 1 1.12	26.06						59.60	62.07	62.70	63.13	61.87
41	.31	16.84	25.63	.25	0 14 30.60		18 31 52.61	+ 38 39 8.65	− 1.07	24.93					
42	.29	16.85	24.02	+ 2 9.41	66 46 41.21		18 57 36.13	− 27 53 1.96	1.94	6.46		Mic.	39.019	−10	rdgs.
43	.27	+ 16.86	+ 36.80	40.69	36 4 12.49		19 17 57.69	+ 2 49 26.76	1.73	17.52					
44	+ .28	− 16.46	− 1 14.28	30.60	28 53 14.13		19 39 9.46	10 15 25.43	1.79	20.20					
45	− 10.81	16.46	+ 20.78	32.89	30 24 46.85		19 43 29.61	8 28 52.40	1.85	20.08					
46	+ .28	16.45	− 10.51	36.21	32 51 11.90		19 47 58.52	+ 6 2 27.35	1.87	18.82					
47	− 5.34	16.42	1 29.63	1 11.63	51 53 40.05		20 9 45.71	− 13 0 0.60	− 2.11	− 17.71					
48			−14 34.05	45.31	41 28 13.18	39.124	12 26	− 2 50 35.91							
49			+17 28.86	46.36	42 0 17.14										
50	+ .27	13.98	+16 49.40	46.24	42 23 33.15	39.178	12 29 55.14	− 3 13 53.32							
51	+ .27	13.98	−15 10.85	+ 45.34	41 51 31.99										

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
27	Sun . .		1 4.23	
48	Sun . .			16 1.98
50	Sun . .		1 4.25	16 0.58

4. + ″.58 applied for defective illumination.
5 to 9. Observed for dec. at 17m. 26s., 18m. 53s., 20m. 20s., 21m 45s., and 23m. 19s.
22, 41, 47, 48, 49. Unsteady. 41. Blurred.
23. Observed through thin cloud.
29 to 34. A little unsteady. Observed for dec. at 59m. 15s., 2m. 38s, 6m. 5s., 9m. 47s., 13m. 27s., and 15m. 47s.
37 to 40. Unsteady; sky hazy. Observed for dec. at 17m. 17s., 18m. 44s. 23m. 25s., and 24m. 49s.

DATE.	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THE At.
1850.			s.	s.	s	s.	s.	s.	s.	h. m. s	° ′ ″	″	″	″	″	Wire	Revs.	In.	°
Oct. 1	†1	Polaris, S. P.							13.0		307 24 1.8	1.5	5.2	5.7	3.55	IV.	42.065	30.210	63.8
	2																42.015		
	3																41.955		
	4							30.0									41.852		
	5																41.804		
	6						34.0										41.777		
	7																41.790		
	†8					35.0				13 6 31.57							41.782	30.204	64.2
	9																41.790		
	10				34.0												41.785		
	11																41.770		
	12																41.815		
	13			36.0													41.852		
	14																41.900		
	15																41.968		
	†16		39.0														42.045	30.202	64.2
	17	Venus, 1st&N.L.	15.84	27.41	39.40	51.25	3.10	15.10	27.05	15 25 51.31	60 59 64.8	56.7	61.7	61.4	61.15		38.628	30.160	65.7
	†18	Venus, 1st & S.L.															39.383		
	†19	γ Draconis	28.45	45.96	3.54	21.22	38.82	56.38	14.59	17 53 21.28	347 24 4.7	4.2	7.4	6.2	5.62		37.215	30.138	65.0
	20	μ^1 Sagittarii			50.67	2.69	14.24	26.08	38.18	18 5 14.37	59 56 63.8	52.9	59.8	59.5	59.00		40.025	30.137	65.2
	†21	δ Ursæ Minoris	29.5								312 18 5.8	7.8	12.0	7.8	8.35		39.410	30.132	65.1
	22																39.550		
	23			33.0													39.645		
	24				39.5												39.662		
	†25									18 20 45.00							39.667		
	26						49.0										39.651		
	27							54.0									39.628		
	28																39.554		
	†29								5.0								39.358	30.128	65.0
	30	β Lyræ	8.05	21.05	34.07	47.23	0.34	13.28	27.07	18 44 47.29	5 42 9.8	7.4	13.0	9.1			38.250	30.130	64.5
	31	6521	12.45	24.81	37.13	49.55	1.95	14.44	27.12	18 57 49.64	66 44 36.8	28.5	35.7	32.4	33.35		38.870	30.130	64.5
	32	δ Aquilæ	38.42	49.40	0.03	11.20	22.02	33.05	44.40	19 18 11.22	36 2 64.7	54.3	61.8	61.4	60.55		39.942	30.124	64.0
	33	6726	28.05	39.86	51.62	3.80	15.81	27.65	40.05	19 31 3.83									
	34	6727	45.34	57.23	9.32	21.08	33.09	45.25	57.35	19 31 21.24	62 38 63.0	56.8	63.0	59.0	60.45		36.794	30.126	64.0
	35	α Aquilæ		20.89	32.04	43.15	54.27		16.94	19 43 45.46									
	36	β Aquilæ	38.92	49.94	0.99	11.84	22.89	33.88	45.44	19 48 11.99	32 49 29.1	18.9	27.1	24.8	24.99		41.029	30.126	63.5
	37	α^1 Capricorni	1.57	12.74	24.19	35.39	46.66	57.82	9.54	20 9 35.42									
	38	α^2 Capricorni	25.52	36.48	47.90	59.14	10.61	21.46	33.46	20 9 59.25									
	39	ε Pegasi	31.97	42.77	53.67	4.50	16.09	27.04	38.57	21 36 4.94	29 40 32.9	24.6	31.8	30.7	29.97		40.644	30.108	62.2
	40	α Gruis								21 59	86 22 6.5	3.9	9.8	4.0	6.05		39.225	30.108	62.0
	†41	Neptune	21.98		44.00	55.08	6.15	17.52	28.87	22 27 58.93	49 21 60.4	51.0	57.5	57.4	56.64		42.672	30.102	61.2
	42	α Piscis Australis	59.08	11.60	24.25	36.91	49.72	2.35	15.43	22 49 37.05	69 14 58.8	51.7	58.8	56.4	56.42		40.755	30.100	61.0
	43	α Pegasi	59.72	11.05	22.30	33.67	44.84	56.13	7.93	22 57 33.66	24 29 63.3	57.4	64.6	63.0	62.08		37.148	30.098	61.0
	44	α Andromedæ	17.64	29.91	42.74	54.92	7.54	20.10	32.74	0 0 55.08									
	45	γ Pegasi	13.15	24.57	35.96	47.20	58.62	9.86	21.64	0 5 47.29									
	†46	Flora	31.08	42.19	53.50	4.73	15.83		38.37	0 16 0.95	50 5 65.4	56.7	64.1	64.3	62.62		40.484	30.052	60.8
3	47	Polaris, S. P.	38.5	36.0	33.0	30.5	30.0	28.0	13.0	13 6 29.86									
	48	α Bootis	26.65	38.45	49.85	1.66	13.29	24.94	36.90	14 9 1.68									
	49	Venus	33.09	46.05	57.00	8.90	20.85	32.78	45.13	15 34 9.11									
	†50	γ Aquilæ	47.95	59.14	10.16	21.63	32.52	43.80	55.13	19 38 21.48									
	51	α Aquilæ	8.27	19.10	30.72	41.75	52.68	3.89	15.17	19 43 41.65									
	52	β Aquilæ	37.34	48.47	59.22	10.21	21.42	32.39	43.72	19 47 10.39									

Date.	CLOCK. At 15h.	Hourly rate	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At	revs.
	s	s.	s.	s.	s.	″	h.	
Oct. 1, 21	f. 13.820	l. .019	+ .154	.000	+ .120	— 0.40		
3, 15	12.752	.095						
3, 21	12.173	.136						
4, 17	f. 10.155	.110						

1 rev. = 34″.356.

19. Mic. recorded 36r.215.
41. Eye-piece moves stiffly.
46. Lowest power eye-piece used.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1			+ 1 28.59	− 1 14.35	307 24 17.79										
2			1 29.61	1 14.35	18.81										
3			1 30.17	1 14.34	19.38							Oct	3,	20h.	
4			1 28.41	1 14.33	17.63						0.0	1.5	2.0	2.0	1.38
5			1 28.84	1 14.32	18.07						1.2	2.9	2.8	2.7	2.40
6			1 28.77	1 14.31	18.01						1.2	2.5	3.8	3.5	2.75
7			1 29.74	1 14.30	18.99						0.80	2.30	2.87	2.73	2.18
8	− 4.46	13.97	1 29.46	1 14.29	18.72		13 6 13.14	− 88 30 39.18	− 70.09	− 5.46					
9			1 29.66	1 14.29	18.97	39.178						Mic.	39.017	−10	rdgs.
10			1 29.15	1 14.29	18.41										
11			1 28.28	1 14.29	17.54										
12			1 29.01	1 14.29	18.27										
13			1 29.51	1 14.29	18.77										
14			1 28.85	1 14.29	18.11										
15			1 29.84	1 14.29	19.10										
16			+ 1 29.10	− 1 14.29	18.36										
17	+ .28	− 13.92	− 18.91	+ 1 30.32	61 1 12.56		15 26 38.49	− 22 7 46.56							
18			+ 7.03	+ 1 39.88	61 1 39.06										
19	+ .35	13.88	− 1 7.46	− 12.79	347 22 45.37		17 53 7.75	+ 51 30 53.88	0.28	24.74					
20	− 11.47	13.88	+ 29.08	+ 1 38.46	59 59 6.54		18 4 49.02	− 21 5 27.29	− 1.54	6.64					
21			17.84	− 1 2.82	312 17 23.37										
22			17.06	1 2.84	22.46										
23			17.47	1 2.86	25.96										
24			17.43	1 2.88	22.90										
25	+ 1.96	13.87	16.80	1 2.90	22.25		18 20 33.09	+ 86 36 16.45	+ 10.26	25.63					
26			16.96	1 2.91	22.40										
27			16.52	1 2.93	21.94										
28			16.91	1 2.95	22.31										
29			+ 16.19	− 1 2.97	21.57										
30	.30	13.86	− 28.31	+ 5.73	5 41 47.24	39.074	18 44 33.73	+ 33 11 52.01	− 1.18	24.38					
31	.29	13.86	− 7.01	2 12.90	66 46 39.24		18 57 36.07	− 27 52 59.99	1.89	6.00					
32	.27	13.85	+ 29.82	41.87	36 4 12.24		19 17 57.64	+ 2 49 27.01	1.70	17.51					
33	.28	13.85					19 30 50.26	− 23 46	2.00						
34	+ .28	13.85	− 1 18.33	1 50.77	62 39 32.89		19 31 7.67	− 23 45 53.64	2.00	8.95					
35	− 1.96	13.84					19 43 29.66	+ 8 28	1.81						
36	+ .28	13.84	+ 1 7.17	37.29	32 51 9.45		19 47 58.43	+ 6 2 29.80	1.84	18.89					
37	.28	13.84					20 9 21.86	− 12 58	2.08						
38	.28	13.84					20 9 45.69	− 13 0	2.08						
39	+ .28	13.81	53.94	33.19	29 41 57.10		21 36 51.41	+ 9 11 42.15	2.37	21.11					
40	− .33	13.80	5.19	12 35.15	86 34 46.39		21 58	− 47 41 7.18	2.93	7.63					
41	− 3.44	13.79	2 3.71	1 7.61	49 24 7.96		22 27 41.70	10 30 28.71							
42	+ .29	13.79	+ 57.75	2 32.52	69 18 26.69		22 49 23.55	− 30 24 47.44	2.70	13.46					
43	.28	13.78	− 1 6.17	26.50	24 29 22.41		22 57 20.16	+ 14 24 16.84	2.69	− 20.51					
44	.29	13.76					0 0 41.61	28 15	3.11						
45	.28	13.76					0 5 33.81	+ 14 21	2.86						
46	+ 3.99	13.76	+ 48.44	+ 1 2.22	50 7 53.28		0 15 51.18	− 11 14 14.03							
47	− 4.46	12.92					13 6 12.48	+ 88 30	− 70.22						
48	+ .28	12.83					14 8 49.13	+ 19 58	+ .06						
49	.28	12.70					15 34 57.54	− 22 45							
50	.28	12.35					19 38 9.41	+ 10 15	− 1.71						
51	.28	12.34					19 43 29.59	8 28	1.77						
52	+ .28	12.34					19 47 58.33	+ 6.2	− 1.79						

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
17	Venus -	+ .82		13.25
49	Venus -	+ .85		
8	Sun - -		1 4.49	

1 to 16, Unsteady. Observed for declination at 52m. 0s., 54m 0s., 56m. 17s.. 58m. 11s., 1m. 12s., 3m. 14s., 6m. 12s., 7m. 0s., 7m. 40s., 9m. 17s., 10m. 20s., 12m, 0s, 13m. 13s., 16m. 0s., 17m. 16s., and 20m. 0s.

18. Applied + 0″.53 for defective illumination.

21 to 29. Observed for declination at 11m. 35s., 14m. 43s.., 17m. 17s., 19m. 10s., 20m. 45s., 22m. 16s., 23m. 49s., 26m. 54s., and 30m. 5s.

46, 50, 51. Poor observations. 50,51. Observed with full aperture.

DATE.	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER A.	B.	C.	D.	Mean.	Mic.	Barometer.	TE At
1850.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″		Wire IV. Revs.	In.	°
Oct. 3	1	α^2 Capricorni	24.26	35.27	46.23	57.52	8.63	20.15	32.09	20 10 57.74								
	2	α Gruis	10.97	26.94	43.40	59.64	15.82			21 58 43.35								
	3	Neptune	10.58	21.57	32.85	43.45	54.87	6.15	17.60	22 27 43.87	49 20 61.0	51.7	59.0	58.2	57.48	44.202	30.100	59.
	4	α Piscis Australis	57.16	9.81	22.40	35.53	48.02	0.79	14.05	22 49 35.39	69 14 59.8	54.5	61.6	58.0	58.48	40.584	30.096	58.
	5	α Pegasi		8.96	20.42	31.88	43.02	54.52	6.13	22 57 37.49	24 29 60.8	55.9	63.4	60.4	60.12	37.156	30.098	58.
	6	γ Cephei	8.95	56.96	45.34	33.34	20.63	9.10	59.22	23 33 33.36	322 6 1.3	7.2	9.9	6.2	6.15	39.668	30.098	57.
	†7	γ Pegasi	11.63	22.75	34.25		56.87	7.89	19.80	0 5 45.33	24 29 63.8	57.9	66.9	64.4	63.25	42.364	30.106	57.
4	8	Sun, 1st L.	21.78	32.86	43.83	54.55	5.91	16.96	28.38	12 39 54.89								
	9	Sun, 2d L.	30.73	41.72	53.05	3.84	14.93	25.76	37.15	12 42 3.88								
	†10	Polaris, S. P.	33.0	28.0	33.0	30.0	29.0	26.0	6.0	13 6 26.43								
	11	μ^1 Sagittarii	23.46	35.04	46.89	58.55	10.40	22.08	34.29	18 4 58.69								
	†12	δ Ursæ Minoris	25.0								312 18 3.4	4.7	9.4	5.6	5.78	39.765		
	13			28.7												39.805		
	14				32.5											39.800		
	†15					38.5	43.0			18 20 39.39						39.801	30.126	66.
	16							48.3								39.802		
	†17								59.7							39.775		
	18	β Lyræ	3.97	17.05	30.11	43.17	56.31	9.40	22.94	18 44 43.28	5 42 5.8	3.5	9.8	5.0	6.02	38.402		
	19	6726								19 31 16.33	62 39 8.0	2.3	10.4	5.5	6.55	36.310	30.126	65.
	20	6727					28.96	41.04	53.39	19 31 41.13						36.682	30.126	65.
8	21	Venus, N. L.								15 55	63 2 22.8	12.4	20.8	17.0	18.25	38.420	30.200	60.
	†22	Venus, S. L.														39.170		
	23	μ^1 Sagittarii			40.36	51.96	3.68	15.52	27.54	18 5 3.81								
	†24	δ Ursæ Minoris		20.0							312 42 0.9	1.4	7.6	3.2	3.30	39.900	30.182	60.
	25				25.0											39.932		
	†26					30.5	36.0			18 22 4.08						39.928		
	27							40.5								39.900		
	†28								52.5							39.900	30.182	60.
	29	β Lyræ	57.36	10.27	23.60	36.63	49.65	2.82	16.28	18 44 36.66								
	30	6521	1.85	14.13	26.50	39.00	51.30	3.64	16.60	18 57 39.00	66 44 63.8	58.0	66.2	62.9	62.72	37.962	30.168	59.
	31	δ Aquilæ		38.43	49.57	0.45	11.55	22.49	33.97	19 18 6.08								
	†32	6726	17.19	29.19	41.04	53.11	4.94	17.11	29.28	19 30 53.12	62 38 64.0	57.0	67.0	60.7	62.18	36.485	30.168	59.
	33	6727	34.66	46.66	58.68	10.65	22.47	34.40	46.92	19 31 10.63	62 38 63.5	58.0	66.8	60.0	62.08	36.820	30.170	59.
	34	α Aquilæ	59.21	10.37	21.34	32.43	43.57	54.65	6.12	19 43 32.53								
	35	β Aquilæ			50.13	1.21	12.25	23.34	34.66	19 48 12.32								
	36	α^2 Capricorni	15.00	25.83	37.20	48.57	59.80	10.87	22.62	20 9 48.56	51 50 65.2	55.7	65.3	64.0	62.55	41.764	30.176	58.
9	37	β Cephei	10.93	42.54	14.10	46.07	18.47	50.54	22.88	21 26 46.50								
	38	α Gruis	59.84	16.10	32.49	49.02	4.97	21.48	37.98	21 57 48.84								
	39	Neptune		43.70	54.49	6.00	17.15	28.14	39.80	22 27 11.55	49 27 35.8	29.3	37.1	37.0	34.80	42.520	30.148	57.
	†40	ζ Pegasi	28.97	39.9	51.21	2.35	13.39	24.61	36.06	22 34 2.36	28 49 39.1	36.6	36.7	37.9	37.56	39.498	30.150	57.
	41	α Piscis Australis	46.75	59.07	11.97	24.58	37.43	49.97	3.05	22 49 24.68	69 14 63.4	57.4	64.0	61.0	61.45	40.520	30.150	56.
	42	α Pegasi	47.42	58.62	9.82	21.33	32.53	43.81	55.52	22 57 21.29	24 29 64.4	57.5	65.0	63.2	62.52	37.064	30.146	56.
	43	α Andromedæ	5.27	17.65	29.96	42.50	54.97	7.32	20.46	0 0 42.59	10 35 61.0	54.9	63.2	60.9	60.01	41.598		
	44	Flora								0 9	50 44 62.6	56.4	62.7	61.8	60.88	39.350	30.152	56.
	†45	Polaris, S. P.	3.0								310 24 2.5	2.5	9.9	3.5	4.60	38.530		
	46															38.708		
	47			4.0												38.858		
	48															38.970		
	49				6.0											39.075		
	50															39.125		
	†51					8.0				1 6 11.36						39.130		
	†52															39.125		

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At h.	revs.
h.	s.	s.	s.	s.	s.	″		
Oct. 4, 17	f 10.155	l .110	+ .154	+ .000	+ .120			
8, 19	3.363	.104						
9, 23	1.369	.069						

1 rev. = 34″.356.

40. Transit of wire I recorded 29.97.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″					
1	+ 0 .28	— 12.29					20 9 45.73	— 13.00	— 2.03						
2	16.67	12 04					21 58 47.98	47.41	2.88						
3	.28	11.98	+ 2 55.97	+ 1 7.90	49 25 1.36	39.080	22 27 32.17	10 31 22.11							
4	+ .29	11.93	+ 51.67	2 33.22	69 18 23.37		22 49 23.75	— 30 24 44.12	2.68	— 13.46					
5	— 5.38	11.91	— 1 6.10	+ 26.10	24 29 20.12		22 57 20.20	+ 14 24 19.14	2.69	20.70					
6	+ .68	11.83	+ 20.20	— 45.51	322 5 40.84		23 33 22.21	76 47 58.41	7.95	17.91					
7	.27	11.75	1 52.82	+ 26.76	24 32 22.83		0 5 33.85	+ 14 21 16.42	2.86	18.11					
8	·27	10.63					12 40 49.03	— 4 29							
9	+ .27	10.63													
10	— 4.46	10.58					13 6 11.39	+ 88 30	70.29						
11	+ .28	10.04					18 4 48.93	— 21 5	— 1.47			Oct.	4,	19. h.	
12			22.12	— 1 2.61	312 17 25.29	39.152					4.9	5.7	7.0	7.2	6.20
13			23.17	1 2.62	26.33						3.8	6.0	6.0	6.6	5.60
14	1.96	10.01	22.31	1 2.63	25.46		18 20 31.24	+ 86 36 13.57	+ 11.43	25.48	3.6	5.6	7.0	6.8	5.75
15			22.30	1 2.64	25.44						4.10	5.77	6.67	6.86	5.85
16			23.01	1 2.65	26.14							Mic.	38.981	—10	rdgs.
17			+ 22.30	— 1 2.66	25.42										
18	+ .30	10.01	— 25.75	+ 5.70	5 41 45.97		18 44 33.51	+ 33 11 53.28	— 1.09	24.34					
19		9.88	1 37.62	1 50.67	62 39 19.60		19 31	— 23 45 40.35	1.94	8.83					
20	— 23.92	9.88	1 24.85	1 50.69	62 39 32.39		19 31 7.33	23 45 53.14	1.93	8.81					
21		3.67	27.84	1 40.87	63 3 31.28	39.230	15 55	24 10 5.14	70.29						
22		3.67	— 2.08	+ 1 41.33	63 3 57.50										
23	11.47	3.46					18 4 48.93	— 21 5	— 1.39						
24			+ 25.44	— 1 3.32	312 17 25.42										
25			24.16	1 3.34	24.12										
26	— 1 30.56	3.43	24.00	1 3.37	23.93		18 20 30.09	+ 86 36 15.20	+ 13.23	25.42		Oct.	8,	20.5h.	
27			23.27	1 3.40	23.17						57.2	59.0	59.4	59.8	58.85
28			+ 23.71	— 1 3.42	23.59						56.6	59.0	60.6	59.6	58.95
29	+ .30	3.39					18 44 33.57	+ 33 11	— 0.99						
30	+ .29	3.37	— 43.58	+ 2 14.44	66 46 33.58		18 57 35.92	— 27 52 54.33	1.72	5.81	56.90	59.00	60.00	59.70	58.90
31	— 5.22	3.33					19 17 57.53	+ 2 49	1.58						
32	+ .29	3.31	1 34.32	1 52.04	62 39 19.90		19 30 50.10	— 23 45 40.65	1.84	8.68		Mic.	39.262	—5	rdgs.
33	.29	3.31	1 22.81	1 52.09	62 39 31.36		19 31 7.61	— 23 45 52.11	1.84	8.67					
34	+ .28	3.29					19 43 29.52	+ 8 28	1.67						
35	— 10.75	3.28					19 47 58.29	+ 6 2	1.69						
36	+ .28	3.24	— 1 27.04	1 14.39	51 53 43.98		20 9 45.60	— 13 0 4.73	1.94	13.58					
37	.50	1.48					21 26 45.52	+ 69 54	3.24						
38	+ .33	1.44					21 58 47.73	— 47 41	2.77						
39	— 5.30	1.42	+ 1 57.01	1 8.20	49 27 40.03	39.114	22 27 4.83	— 10 34 0.78							
40	+ .28	1.40	13.14	32.39	28 50 23.04		22 34 1.24	+ 10 3 16.21	2.55	21.07					
41	.29	1.38	+ 48.30	2 33.81	69 18 23.56		22 49 23.59	— 30 24 44.31	2.62	12.18		Oct.	9,	23.4h.	
42	.28	1.37	— 1 11.46	26.73	24 29 17.79		22 57 20.20	+ 14 24 21.46	2.64	21.18	0.2	0.9	1.2	2.0	1.08
43	·29	1.30	+ 1 25.34	11.06	10 37 36.41		0 0 41.58	+ 28 16 2.84	3.08	19.38	0.2	1.5	2.2	2.1	1.50
44			8.11	+ 1 4.96	50 46 13.95		0 9	— 11 52 34.70			0.0	2.0	3.4	2.5	1.97
45			2.72	— 1 9.19	310 22 58.13						0.13	1.47	2.27	2.20	1.52
46			2.04	1 9.20	57.44							Mic.	39.070	—10	rdgs.
47			1.36	1 9.21	56.75										
48			0.56	1 9.22	55.94										
49			1.08	1 9.23	56.45										
50			1.04	1 9.24	56.40										
51	+ 4.78	— 1.22	0.55	1 9.25	55.90		1 6 14.92	+ 88 30 42.61	— 71.15	— 8.56					
52			+ 1.00	— 1 9.25	56.35										

No	Object.	COR. IN R. A. Semi-diam.	Observed semi-diam. Hor.	Observed semi-diam. Vert.
		m. s.	m. s.	′ ″
21	Venus -			13.11

7, 10. Unsteady.
12 to 17. Faint but steady. Observed for dec. at 17m. 42s., 19m. 12s., 20m. 0s., 20m. 45s., 22m. 8s., and 23m. 30s.
22. +0.″43 applied for defective illumination.
24 to 28. Observed for dec. at 16m. 0s, 20m. 0s., 21m. 0s., 22m. 0s., and 23m 0s.
32. Observed for dec. at wire VII.
45 to 52. Observed for dec. at 45m. 4s., 48m. 30s., 52m. 6s., 55m. 49s., 59m. 20s., 2m. 37s., 6m. 8s, and 9m. 40s.

DATE.	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Er.
1850.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Oct. 9	†1						12.5									IV.	39.047			
	2																38.935			
	3							14.0									38.798			
	4																38.675			
	†5								32.0								38.447			
10	6	Polaris, S. P.	27.0	25.0	26.0	19.0	16.0	13.0	1.0	13 6 18.14										
14	†7								56.0		307 24 3.3	3.0	11.3	8.5	6.52		41.920	30.158	60.8	59.7
	8							12.0									41.860			
	9						12.0										41.880			
	†10	Polaris, S. P.				14.0				13 6 15.21							41.880			
	11				22.0												41.860			
	12			24.0													41.870			
	†13		26.5														41.865	30.152	61.0	59.9
15	14	α Scorpii		47.52	59.55		23.03	35.44	48.09	16 20 18.72	64 56 61.5	51.3	61.9	61.3	59.00		39.584	30.092	64.0	64.0
	15	Venus, 1st & N. L.	16.29	28.51	40.74	53.01	5.25	17.23	30.05	16 23 63.01	64 38 62.4	57.9	62.7	58.0	60.25		38.712			
	†16	Venus, 1st & S. L.															39.605			
	†17	δ Aquilæ	21.75	32.54	43.39	54.46	5.36	16.50	27.83	19 17 54.55	36 2 60.4	50.4	56.9	58.2	56.47		40.025	30.100	64.2	59.2
	18	γ Aquilæ	32.85	43.84	55.06	6.25	17.32	28.50	40.50	19 39 6.33	29 35 61.4	54.2	60.2	60.6	59.60		42.005	30.100	64.2	58.0
	19	α Aquilæ	53.08	4.04	15.16	26.51	37 44	48.39	0.13	19 43 26.39	30 20 62.2	53.4	59.7	60.4	58.92		44.722	30.106	64.2	57.8
	20	β Aquilæ	22.17	33.35	44.29	55.45	6.36	17.31	29.06	19 47 55.43	32 47 63.6	53.7	59.6	61.2	59.52		43.564	30.110	64.2	57.3
	21	α^2 Capricorni	8.70	19.95	31.30	42.55	53.66	4.75	16.56	20 9 42.49	51 50 63.5	54.5	62.1	61.8	60.47		41.708	30.100	63.5	52.1
	†22	ν Aquarii	50.55	1.70	12.78	24.17	35.25	46.55	58.15	21 1 24.17	50 51 11.5	3.0	13.1	9.8	9.35		38.430	30.118	63.0	53.0
	23	ι Capricorni	17.98	29.48	40.74	52.27	3.90	15.42	27.25	21 13 52.43	56 20 60.7	50.2	59.4	57.3	56.90		37.770	30.118	62.5	52.5
	†24	ε Pegasi	13.94	24.95	35.96	47.32	58.10			21 36 36.05	29 41 64.4	56.3	63.8	62.4	61.72		37.925	30.120	62.0	51.5
	25	Moon, N. L.								21 47	54 16 36.4	30.0	35.8	35.1	34.34		40.198	30.117	61.0	51.3
	26	ι Aquarii									53 29 60.3	50.5	57.4	57.6	56.45		35.358	30.114	61.3	50.7
	27	θ Aquarii	20.93	32.05	43.05	53.97	5.47	16.49	27.96	22 8 54.27	47 26 57.4	49.5	58.2	56.0	55.28		35.522	30.112	61.0	50.4
	†28	Neptune								22 26	49 28 14.4	11.8	18.0	18.3	15.62		39.834	30.110	60.5	50.2
	29	α Piscis Australis	42.41	54.91	7.94	20.29	33.04	45.78	59.18	22 49 20.51	69 14 60.9	55.0	61.3	58.5	58.92		40.594			49.2
	†30		59.0								310 24 1.0	1.0	8.7	2.5	3.30		38.445	30.092	58.3	47.2
	†31														3.50		38.697			
	32			9.0											3.70		38.785			
	33														3.90		38.955			
	34				7.0										4.10		39.010	30.090	57.9	47.0
	†35														4.30		39.005			
	†36	Polaris				7.0				1 6 9.64	1.7	0.8	9.9	5.6	4.50		39.095			
	†37														4.59		39.059			
	38						6.0								4.68		39.082	30.088	57.0	46.8
	39														4.77		38.970			
	40							9.5							4.86		38.918			
	†41														4.96		38.800			
	†42								9.0		2.0	2.0	11.0	5.2	5.05		38.635	30.090	56.5	46.5
16	†43								53.0		307 23 59.6	59.5	66.1	64.6	62.45		42.075	30.094	61.7	63.8
	44							11.0									42.050			
	45						13.0										41.982			
	46	Polaris, S. P.				15.0				13 6 14.86							41.965			
	47				22.0												41.938			
	48			23.0													42.013			
	†49		27.0														42.060			64.8
	50	α Scorpii		46.08	58.07	10.51	22.70	34.74	47.28	16 20 16.56	64 56 64.0	55.7	64.8	63.9	62.10		39.620	30.040	65.0	71.5
	†51	Venus, 1st & N. L	13.55	25.71	38.03	50.20	2.20	14.55	26.86	16 27 50.16	64 50 64.5	56.4	61.5	64.0	61.60		38.215	30.036	66.3	71.8
	†52	Venus, 1st & S. L.															39.045			

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At.	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Oct. 15, 20	s 2.557	l .064	+ .154	.000	+ .120	— 0.38		
16, 16	- -	.038						
28, 23	11.432	l .053	— .088	— .020	+ .120			

1 rev. = 34″.356

17. Subtracted 1s. from transit.
24. Added 1s. to transit
23. Micrometer recorded 40m.834.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	°
1			+ 0.22	− 1 9.25	310 22 55.57										
2			− 0.51	1 9.25	54.84										
3			− 0.85	1 9.25	54.50										
4			+ 0.56	1 9.25	55.91							Oct.	15,	14h.	
5			0.22	1 9.25	55.57						0.3	2.9	6.5	4 8	3.62
6	− 4.47	− 0.39					13 6 13.26	+ 88 30	− 71.23		1.0	3.4	6.4	5.4	4.05
7			1 36.18	1 14.91	307 24 27.79	39.126					1.4	3.1	6.9	5.0	4.10
8			1 33.91	1 14.90	25.53										
9			1 34.60	1 14.89	26.23						0.90	3.13	6.60	5.07	3.92
10	4.47	+ 2.10	1 34.61	1 14.88	26.25		13 6 12.84	+ 88 30 46.76	71.20	− 10.81		Mic.	39.011	−10	rdgs.
11			1 33.92	1 14.87	25.27										
12			1 34.20	1 14.86	25.86										
13			1 33.48	− 1 14.86	25.14										
14	− 7.04	2.02	+ 15.75	+ 2 0.96	64 59 15.71		16 20 13.70	− 26 5 36.46	0.87	2.10		Oct.	15,	20h.	
15			− 14.21	1 46.10	64 40 32.14						1.0	1.9	2.9	4.9	2.68
16	+ .29	2.33	+ 16.47	1 46.49	64 41 1.21		16 23 56.64	− 25 47 7.43			0.8	1.7	2.4	3.5	2.10
17	.28	2.53	32.89	41.75	36 4 11.11	39.068	19 17 57.36	+ 2 49 28.14	1.45	17.24	0.8	2.0	3.5	3.6	2.47
18	.28	2.54	1 40.95	31.38	28 38 11.93		19 39 9.15	10 15 27.32	1.50	20.11	0.87	1.87	2.93	4.00	2.42
19	.28	2.54	3 14.26	33.75	30 24 46.93		19 43 29.21	8 28 52.32	1.56	20.04					
20	.28	2.54	2 34.48	37.17	32 51 11.17		19 47 58.25	+ 6 2 28.08	1.58	18.68		Mic.	38.997	−10	rdgs.
21	.28	2.57	+ 1 30.71	1 14.00	51 53 45.18		20 9 45.34	− 13 0 5.93	1.84	13.24					
22	.28	2.62	− 21.91	1 11.24	50 51 58.68		21 1 27.07	11 58 19.43	2.08	18.85					
23	.28	2.64	44.58	1 27.10	56 21 39.42		21 13 55.35	− 17 28 0.17	2.16	13.34					
24	11.43	2.66	− 39.26	+ 33.22	29 41 55.68		21 36 51.14	+ 9 11 43.57	2.19	21.53		Oct.	15, 1h		
25			+ 37.70	−57 24.48	53 19 47.56		21 47	− 14 26 8.31			0.4	2.3	5.3	4.7	3.17
26			− 2 7.45	+ 1 18.60	53 29 7.60		21 58	14 35 28.35		14.92	0.4	2.4	5.4	4.3	3.13
27	.28	2.69	− 2 1.81	1 3.45	47 25 56.92		22 8 57.24	8 32 17.67	2.35	16.79	0.3	2.5	4.5	4.4	2.92
28			+ 26.49	1 7.80	49 29 49.91		22 26	10 36 10.66							
29	.29	2.74	+ 52.44	+ 2 33.35	69 18 24.71	39.159	22 49 23.54	− 30 24 45.46	2.58	11.29	0.37	2.40	5.07	4.46	3.08
30			− 1.94	− 1 8.92	310 22 52.44							Mic.	39.070	−10	rdgs.
31			4.16	1 8.92	50.42										
32			2.98	1 8.93	51.79										
33			3.61	1 8.93	51.36										
34			3.28	1 8.94	51.88							Oct.	16,	15h.	
35			4.61	1 8.94	50.75						0.5	2.2	5.8	4.5	3.25
36	+ 4.78	2.88	2.13	1 8.95	53.42		1 6 17.30	+ 88 30 47.14	71.15	10.99	0.7	2.5	5.5	4.3	3.25
37			3.43	1 8.95	52.21						0.9	2.0	4.8	4.4	3.02
38			2.05	1 8.96	53.67						0.70	2.23	5.37	4.40	3.17
39			3.96	1 8.97	51.84										
40			2.29	1 8.98	53.59							Mic.	39.087	−10	rdgs.
41			5.20	1 9.00	50.76										
42			− 2.85	1 9.02	53.18										
43			+ 1 36.62	1 14.16	307 24 24.91										
44			1 37.13	1 14.13	25.45										
45			1 34.79	1 14.11	23.13										
46	− 4.47	3.25	1 35.72	1 14.09	24.08	39.179	13 6 13.64	+ 88 30 45.52	70.97	11.51					
47			1 36.20	1 14.07	24.58										
48			1 37.76	1 14.05	26.16										
49			1 36.68	− 1 14.02	25.11										
50	− 5.81	3.32	+ 15.15	+ 1 59.06	64 59 16.31		16 20 14.07	− 26 5 37.06	− 0.87	− 2.15					
51	+ .29	+ 3.32	− 33.12	1 45.28	64 52 13.76		16 27 54.80	− 25 58 48.96							
52			− 4.60	+ 1 45.66	64 52 42.66										

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
15	Venus .	+ 1.01	- - -	14.53
51	Venus .	+ 1.03	- - -	14.45

1 to 5. Observed for dec. at 13m. 15s., 16m. 45s., 20m. 14s., 23m. 45s., and 27m. 32s.
7 to 13. Faint and unsteady. Observed for dec. at 3m. 5s., 5m. 40s., 5m. 50s., 5m. 57s., 6m. 30s., 8m. 0s., and 9m. 40s.
16. Applied +0″.37 for defective illumination.
30 to 42. Distended and a little unsteady. Observed for dec. at 45m. 6s., 51m. 0s., 52m. 15s., 58m. 0s., 0m. 0s., 2m. 33s., 5m. 0s., 6m. 15s., 9m. 35s., 13m. 12s., 17m. 0s., 18m. 0s., 23m. 35s.
31 to 35, 37 to 41. Circle readings interpolated.
52. +0″.35 applied for defective illumination.

APPARENT R.A AND DEC. OBSERVED WITH THE MERIDIAN CIRCLE.

E.	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs	Barometer. In.	THER'S. At	Ex
			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″				°	°
18	1	Neptune	17.20	28.59	39.35	50.83	1.91	12.89	24.73	22 26 50.79	49 30 3.8	0.4	5.2	2.3	2.92	IV.	46.050	30.100	57.5	50.6
	2	α Piscis Australis	33.58	46.62	59.06	11.89	24.55	37.29	50.63	22 49 11.94	69 11 62.4	58.8	63.4	60.0	61.00	V.	38.660	30.108	56.8	48.6
	3	α Pegasi	34.42	45.73	57.08	8.42	19.58	30.91	42.86	22 57 8.43	24 32 64.5	59.0	61.9	62.4	61.95	IV.	34.850	30.106	56.0	48.6
	4	α Andromedæ	52.54	4.94	17.27	29.98	42.63	55.03	8.00	0 0 30.06	10 38 62.2	56.5	61.8	63.2	60.92		39.380	30.114	55.3	46.8
	5	γ Pegasi		59.82	10.66	22.06	33.62	44.85	56.47	0 5 27.92										
	†6	Polaris	46.0								310 24 2.7	3.5	8.1	8.0	5.57		41.724	30.106	55.0	44.4
	7																41.857			
	8			46.5													41.935			44.2
	9				48.0												41.960			
	†10					56.0				1 5 55.64							42.000			
	11						51.0										41.990			43.8
	12							0.0									41.898			
	13																41.804			
	†14								22.0								41.665			43.8
	†15	Polaris, S. P.							38.0		307 27 3.2	3.5	8.6	5.5	5.20	IV.	40.660	30.226	54.8	51.9
	16																40.380			
	17							2.5									40.198			
	18																40.008			
	19						4.5										39.968			
	†20					6.0				13 6 4.79							39.965			
	21				12.0												39.968			
	22																40.037			
	23			15.0													40.180			
	24																40.558			
	†25		15.5														40.632	30.222	54.8	52.5
19	†26	Venus, S. L.								17 15	66 33 18.0	15.8	20.8	16.8	17.85		41.312	30.214	59.4	55.0
	27	Venus, N. L.															41.324			
	28	61¹ Cygni								21 0	0 50 58.5	54.2	57.0	57.5	56.80		44.398	30.240	59.4	46.2
	29	α Cephei								21 14	336 53 59.8	60.0	63.0	66.0	62.60		46.422	30.242	56.0	45.8
	†30	β Aquarii	55.75	6.53	17.61	28.73	39.74	50.90	62.37	21 23 28.80	45 6 52.7	51.3	55.4	52.7	53.02		40.753			45.2
	31	ε Pegasi	5.24	16.00	27.51	38.08	49.41	0.28	12.24	21 36 38.39	29 38 61.3	55.2	61.0	60.7	59.55		46.295			44.8
	32	α Gruis	45.85	2.33	18.29	34.70	50.95	7.45	24.43	21 58 34.86	86 22 48.0	47.5	52.4	47.4	48.82		40.552	30.242	53.5	44.4
	†33	Neptune	14.33	25.56	36.53	47.69	58.84	9.85	21.67	22 25 47.78	49 32 57.8	55.5	59.0	59.4	57.92		41.180	30.246	52.5	43.4
	34	ι Piscium	31.15	41.89	52.63	4.00	14.84	25.97	37.82	23 32 4.04	34 2 45.2	37.3	45.8	44.2	43.12		44.079	30.258	52.0	42.0
	35	Weisse, XXIII, 1242	24.34	35.60	46.69	57.90	8.83	20.19	31.96	23 59 57.93	50 50 62.4	57.3	62.5	60.0	60.55		40.425	30.270	51.1	
11	36	Venus, 1st&N.L.	36.82	49.10	59.47	13.83	26.08	38.69	51.83	17 22 13.69	66 39 1.1	0.0	4.1	0.6	1.45		43.632	30.204	57.0	59.3
	†37	Venus, 1st&S.L.															44.598			59.6
	38	α Lyræ	56.07	10.14	23.86	38.17	52.15	6.14	20.98	18 31 38.21	0 14 40.4	37.7	40.8	42.1	40.25		41.875	30.200	58.8	58.7
	39	Neptune	9.07	20.38	31.25	42.58	53.68	4.92	16.63	22 24 42.64	49 38 58.3	54.4	59.1	60.0	57.95		42.02	30.216	57.0	49.5
	40	ζ Pegasi	14.23	25.35	36.45	47.52	58.74	9.78	21.37	22 33 47.61	28 47 61.5	57.0	60.8	60.0	59.82		45.300	30.218	56.8	48.7
	41	α Piscis Australis	31.71	44.28	57.12	9.55	22.41	35.30	48.50	22 49 9.84	69 17 61.3	57.5	63.1	60.0	60.48		38.582			48.7
	†42	α Pegasi	32.26	43.76	54.89	6.35	17.57	29.15	40.86	22 57 6.40	24 29 62.8	58.1	61.0	60.7	60.65		40.278	30.226	56.7	48.8
	†43	Weisse, XXIII, 1210	5.40	16.69	27.82	39.12	50.16	1.32	12.68	23 58 39.03	51 41 60.2	54.8	61.7	58.5	58.55		45.120			
	44	Anonymous					42.76	54.05	5.74	23 59 54.18							46.253	30.230	56.4	49.0
2	45	Venus, 1st&N.L.				0.27	12.73	25.45	38.38	17 28 19.21	66 45 4.8	0.9	7.1	3.5	4.08		42.705	30.244	61.5	64.6
	†46	Venus, 1st & S.L.															43.698			
	47	α Aquilæ					54.86	6.03	17.65	19 44 6.18										
	48	α Cygni	48.86	4.13	19.45	35.07	50.62	5.97	22.07	20 36 35.17	354 9 8.8	5.9	7.2	8.5	7.60		41.195	30.256	64.0	60.8
	49	61¹ Cygni					40.95	55.00	9.73	21 0 55.22										
	50	61² Cygni					42.71	56.33	10.92	21 0 56.65										
	51	ζ Cygni		24.58	37.12	49.82	2.18	15.05	28.14	21 6 56.15	9 18 4.2	0.2	4.3	7.5	4.05		39.140	30.254	63.5	58.5
	52	ε Pegasi		43.38	54.61	5.83	16.74	27.95	39.61	21 37 11.35	29 41 62.0	56.1	61.5	62.5	60.52		41.286	30.248	63.2	56.4

ate.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
28, 23	s 11.432	l .053	— .088	— .020	+ .120			
29, 22	12.659	.029				— .70		
31, 22	13.478	.000				— .86	23	40.278
2, 21	45.071	g .033						
4, 23	43.406	l .035						

″
1 rev. = 34.356

30. Observed with circle unclamped.
42. Observed on fixed wire.
Oct. 28, 22h. Adjusted microscopes.

COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic. Zero	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
0 .04	+ 11.40	+ 2 14.04	— 1 9.69	49 33 26.65	42.149	22 27 2.23	— 10 39 47.40							
.07	11.42	+ 3 51.19	+ 2 33.76	69 18 26.05		22 49 23 43	— 30 24 46.80	— 2.43	— 9.45					
.03	11.43	— 4 10.75	26.72	24 29 17.92		22 57 19.89	+ 14 24 21.33	2.49	21.98					
.04	11.49	1 35.12	+ 11.04	10 37 36.84		0 0 41.59	28 16 2.41	3.02	21.99					
5.63	11.49					0 5 33.78	14 21	2.82			Oct	28,	23h.	
		4.36	— 1 9.40	310 22 51.81						0.8	2.8	3.5	2.3	2.35
		4.61	1 9.39	51.57						0.4	2.8	2.8	2.2	2.05
		4.80	1 9.39	51.38										
		5.80	1 9.40	50.37						0.60	2.80	3.15	2.25	2.20
3.77	11.54	5.12	1 9.41	51.04		1 6 10.95	88 30 48.47	69.85	16.08		Mic.	42.085	—10	rdgs.
		4.87	1 9.42	51.28										
		6.11	1 9.44	50.02										
		6.04	1 9.44	50.09							Oct	29,	17h.	
		6.55	— 1 9.45	49.57						1.7	5.4	5.4	4.3	4.20
		1 14.24	1 16.22	307 24 34.74						1.8	5.8	5.7	5.4	4.68
		1 15.44	1 16.21	33.55						1.7	5.4	6.7	5.3	4.77
		1 13.66	1 16.20	35.34						1.73	5.53	5.93	5.00	4.55
		1 15.94	1 16.20	33.06										
		1 15.42	1 16.18	33.60										
3.85	12.12	1 15.09	1 16.16	33.95	42.149	13 6 13.06	+ 88 30 54.82	69.77	16.08		Mic.	42.062	—10	rdgs.
		1 15.79	1 16.15	33.26										
		1 15.28	1 16.14	33.78							Oct.	29,	22h.	
		1 14.35	1 16.13	34.72						2.0	4.4	5.4	3.9	3.92
		1 14.16	1 16.12	34.92						1.5	4.8	4.2	4.5	3.75
		1 15.26	— 1 16.11	33.83						2.4	4.9	4.9	4.5	4.18
		29.90	+ 1 57.42	66 34 45.37	42.194	17 15	— 27 40 48.57			1.97	4.70	4.83	4.30	3.95
		— 1 4.67	1 57.10	66 34 10.28										
		+ 1 17.78	+ 0.90	0 52 15.48	42.134	21 0	+ 38 1 23.77	1.93	31.38		Mic.	42.019	—10	rdgs.
		+ 2 27.32	— 25.21	336 56 4.31		21 15	+ 61 57 34.94	1.80	31.75					
.04	12.64	— 47.44	+ 59.43	45 7 5.01		21 23 41.48	— 6 13 25.76	1.95	16.46					
.03	12.65	+ 2 22.95	33.82	29 41 56.32		21 36 51.07	+ 9 11 42.93	1.99	21.48		Oct.	31,	21.5h.	
.12	12.66	— 54.83	12 50.35	86 34 41.34		21 58 47.64	— 47 41 2.09	2.37	3.05	59.5	60.7	62.5	62.9	61.40
.04	12.68	— 32.78	1 9.46	49 33 34.60		22 26 0.50	— 10 39 55.35			59.5	60.8	62.7	62.8	61.45
.03	12.70	+ 1 6.82	40.34	34 4 30.28		23 32 16.77	+ 4 49 8.97	2.56	18.64	58.8	62.0	62.7	62.4	61.48
.04	12.72	— 58.71	1 13.22	50 51 15.06		0 0 10.69	— 11 57 35.81	2.60	14.59					
		+ 48.26	1 56.31	66 41 46.02	42.237	17 22 28.51	— 27 48 23.49			59.27	61.17	62.63	62.70	61.44
.05	13.48	+ 1 21.45	1 56.57	66 42 19.47										
.06	13.48	— 12.10	.25	0 14 28.40		18 31 51.75	+ 38 39 10.85	0.25	22.72		Mic.	42.185	—11	rdgs.
.04	13.48	— 6.84	1 8.54	49 33 59.65		22 25 56.16	— 10 40 20.40							
.04	13.48	+ 1 45.57	32.37	28 50 17.76		22 34 1.13	+ 10 3 21.49	2.29	21.47		Nov.	2,	17h.	
.07	13.48	— 2 5.23	2 34.16	69 18 29.41		22 49 23.39	— 30 24 50.16	2.38	9.04	58.8	62.8	64.5	62.1	62.05
.04	13.48	— 1 6.96	26.78	24 29 20.47		22 57 19.92	+ 14 24 18.78	2.45	22.18	58.4	63.0	63.5	61.3	61.55
.05	13.48	+ 1 39.38	1 14.40	51 44 52.33		23 58 52.56	— 12 51 13.08	2.57	14.20	59.2	62.8	63.0	62.0	61.75
22.49	13.48	2 18.31	1 14.43	51 45 31.29		23 59 45.17	12 51 52.04	2.57	14.19					
		8.11	1 55.14	66 47 7.33	42.469	17 28 47.13	— 27 53 45.25			58.80	62.87	63.67	61.80	61.78
18.58	45.19	+ 42.22	+ 1 55.37	66 47 41.67										
22.19	45.11					19 43 29.10	+ 8 28	1.24			Mic.	42.417	—15	rdgs.
.07	45.08	— 43.77	— 5.90	354 8 17.93		20 36 20.32	44 45 21.32	1.23	29.49					
27.85	45.07					21 0 12.44	38 1	1.84						
27.85	45.07					21 0 13.87	38 1	1.84						
6.27	45.07	1 54.37	+ 9 42	9 16 19.10		21 6 34.95	29 37 20.15	1.64	26.92					
5.51	45.05	— 40.64	+ 33 04	29 41 52.92		21 36 50.89	+ 9 11 46.33	— 1.93	— 20.41					

Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
	m. s.	m. s.	′ ″
enus -	+ 1.38		18.16
enus -	1.29		17.54
enus -	1.31		16.72
enus -	+ 1.34		17.17

6 to 14. Observed for declination at 51*m*. 48*s*., 55*m*. 40*s*., 58*m* 55*s*, 2*m*. 18*s*. 6*m*. 10*s*., 9*m*. 22*s*, 13*m*. 0*s*., 16*m* 21*s*., and 20*m*. 3*s*.

15 to 25. A little unsteady at wires II and I. Observed for declination at 44*m*. 40*s*., 49*m*. 0*s*., 56*m*. 33*s*., 59*m*. 8*s*., 2*m*. 52*s*., 7*m*. 10*s*., 10*m*. 6*s*., 13*m*. 17*s*., 17*m* 27*s*., 25*m*. 33*s*., and 27*m*. 18*s*.

26. Unsteady; applied 0″.21 for defective illumination of south limb.

33. Blurred.

37. + 0″.20 applied for defective illumination.

43. Observed for declination after transit.

44. Observed for declination at 0*h*. 0*m*. 16*s*.

46. + 0″.18 applied for defective illumination.

DATE.	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
1850.			s.	s.	s.	s.	s.	s.	s.	m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Nov. 4	1	Venus, 1st & N.L.	23.98	36.09	48.52	0.05	13.45	26.14	39.04	17 34 1.11	66 48 43.8	42.1	48.1	42.0	44.00	IV.	42.064	30.268	66.0	67.2
	†2	Venus, 1st & S. L.															43.115			
	3	ι Piscis Australis .		14.34	27.12	39.58	52.50	5.30	18.10	22 48 46.16	69 14 61.4	57.5	62.8	61.5	60.80		43.890			55.8
	4	α Pegasi . . .		13.66	25.08	36.28	47.82	58.99	11.02	22 56 42.14	24 27 10.4	5.0	10.3	10.4	9.02		45.438	30.294	64.8	55.5
	†5	Flora . . .		34.15	45.10	56.60	7.55	18.70	31.15	23 58 2.21	50 26 6C.7	55.8	62.0	60.0	59.62		42.170	30.298	62.5	53.7
	†6	Polaris. . .	15.5								310 23 60.3	61.0	65.7	67.0	63.50		41.910	30.300	61.0	51.8
	7														63.45		42.045			
	8			18.0											63.40		42.152			
	9				20.5										63.35		42.165			52.0
	†10					23.0				1 5 27.14	59.5	60.2	66.0	67.5	63.30		42.178			
	11						25.0								63.44		42.160			
	12							32.0							63.58		42.088			
	13														63.73		42.008			
	†14								56.0		60.2	61.8	66.5	67.0	63.88		41.878	30.290	59.6	51.8
6	15	Sun, 1st L. . .	35.23	46.68	57.95	9.29	21.17	32.48	44.15	14 44 9.56										
	16	Sun, 2d L. . .			12.95	24.45	36.03	47.56	59.38	14 46 36.07										
	17	Venus, 1st & N.L.	3.91	16.35	28.70	41.14	53.52	5.91	19.07	17 39 41.23	66 50 61.9	56.5	63.7	60.9	60.75		40.495	30.182	63.4	67.5
	†18	Venus, 1st & S. L.															41.538			
	19	ι Capricorni . .	5.82	16.95	28.04	39.55	50.51	1.87	13.68	20 9 39.49	51 50 62.8	58.4	63.0	62.3	61.62		41.300	30.164	64.2	63.0
	20	α² Capricorni . .	29.65	40.81	51.90	3.27	14.55	25.83	37.78	20 10 3.40	51 50 62.3	58.7	63.2	61.1	61.32		45.050			
	21	α Cygni	52.09	7.39	22.83	38.27	53.90	9.24	25.66	20 36 38.48	354 5 59.0	59.7	61.0	64.8	61.12		46.700	30.160	64.0	61.1
	22	61 Cygni . . .		2.77	16.70	30.40	44.45	58.54	13.04	21 0 37.65	0 50 57.9	55.6	58.0	59.5	57.75		44.700			60.2
	23	61² Cygni . . .	50.30	4.04	18.04	32.01	46.04	59.90	14.60	21 0 32.13							44.775	30.164	63.8	60.2
	24	γ Cygni	15.00	27.63	40.15	53.04	5.90	18.21	31.54	21 6 53.09	9 16 57.0	50.8	55.7	58.8	55.58		41.100	30.174	64.0	59.8
	25	α Cephei . . .	9.24	32.45	55.87	18.98	42.20	5.90	29.87	21 15 19.22	336 57 8.8	10.8	9.9	13.0	10.62		41.068	30.162	64.0	59.5
	26	Neptune . . .	31.91	43.05	53.96		16.41	27.31	39.04	22 25 5.28	49 32 57.8	55.5	59.5	61.0	58.45		43.530	30.162	63.5	56.8
	27	α Piscis Australis .	3.24	16.10	28.76	41.32	54.05	6.80	20.34	22 48 41.52	69 14 60.0	55.7	60.9	59.7	59.07		44.019	30.162	63.2	56.8
	28	α Pegasi	4.34	15.56	26.80	38.24	49.50	0.82	12.73	22 57 38.28	24 26 59.4	53.7	59.5	60.2	58.20		45.655	30.162	63.2	56.8
	†29	Polaris . . .	13.0								310 24 5.4	6.4	10.2	11.5	8.37		41.590	30.152	62.0	56.5
	30														8.31		41.700			
	31			14.5											8.24		41.809			
	32				17.0										8.17		41.865			
	†33					22.0				1 5 23.86	5.3	5.8	9.8	11.5	8.10		41.878	30.150		56.4
	34						22.5								8.05		41.852			
	35							26.0							7.99		41.795			
	36														7.93		41.695			
	†37								52.0		5.7	4.7	10.2	10.9	7.88		41.598			
9	38	Sun, 1st L. . .	40.53	52.07	3.77	14.79	26.45	37.60	49.94	14 56 15.02										
	39	Sun, 2d L. . .	56.04	7.78	18.96	30.50	42.01	53.72	5.86	14 58 30.70										
	40	Venus, 1st & N.L.	50.63	3.14	15.63	28.08	40.26	52.76	5.71	17 47 28.03	66 50 61.2	57.3	63.4	59.6	60.38		37.314	30.160	55.0	54.0
	†41	Venus, 1st & S.L.															38.350			
	42	Neptune . . .								22 25	49 33 3.1	0.5	3.8	5.1	3.13		43.603	30.204	51.0	41.8
	43	α Piscis Australis .	6.72	19.67	32.22	44.80	57.52	10.14	23.72	22 49 44.97	69 15 4.0	0.4	5.4	3.5	3.32		43.660	30.204	50.0	40.4
	44	α Pegasi	7.84	18.99	30.45	41.55	52.77	4.04	16.09	22 57 41.68										
	45	ι Piscium . . .	5.63	16.49	27.42	38.27	49.40	0.51	12.30	23 32 38.57										
	46	γ Pegasi . . .	21.50	32.93	44.44	55.52	6.67	17.92	29.71	0 5 55.53										
10	†47	Polaris, S. P. .	47.0	45.0	44.0	38.5	37.0	34.0	0.0	13 5 35.07										
13	48	Venus, 1st & N.L.	35.94	48.40	0.62	13.04	25.23		50.92	17 56 9.02	66 40 1.7	0.1	5.4	2 1	2.32		40.888	30.020	57.0	56.8
	†49	Venus, 1st & S.L.															42.092			
	50	α Gruis			53.40	9.88	26.14	42.44	59.54	21 57 26.28										
	51	α Piscis Australis .			33.30	45.84	58.55	11.47	24.59	22 48 58.75										
	52	α Pegasi	8.53	19.82	30.87	42.45	53.67	5.10	17.06	22 57 42.46										

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Nov. 6, 22	s 41.698	l .020	— .088	— .020	+ .120			
9, 23	s 38.126	g .030						
13, 23	s 37.348	g .018	— .109	+ .012	+ .088	+ .51		

1 rev. = 34″.356

12. Micrometer recorded 42r.188.

COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
											Nov.	4,	1.5h.	
0.06	+ 43.22	— 11.38	+ 1 54.41	66 50 27.03	42.407	17 34 45.77	— 27 57 5.93			59.5	62.2	63.1	64.4	62.30
		+ 24.72	1 54.62	67 51 3.34										
6.28	43.40	50.95	2 32.27	69 18 24.02		22 49 23.28	— 30 24 44.77	— 2.31	— 8.53	59.5	63.4	62.8	62.5	62.05
5.62	43.40	+ 1 44.13	26.48	24 29 19.63		22 57 19.92	+ 14 24 19.62	2.29	22.18					
5.55	43.43	— 8.14	+ 1 4.29	50 27 55.77		23 58 40.09	— 11 34 16.52			59.50	62.80	62.95	63.45	62.18
		7.00	— 1 5.66	210 22 50.84							Mic.	42.344	—5	rdgs.
		6.89	1 5.65	50.91										
		6.30	1 5.64	51.46										
		7.67	1 5.63	50.05										
3.77	43.48	7.86	1 5.62	49.82		1 6 14.39	+ 88 30 48.93	— 68.25	— 18.30					
		7.84	1 5.62	49.98										
		8.43	1 5.63	49.52										
		8.06	1 5.64	50.03										
		7.97	1 5.65	50.26										
											Nov.	6,	17h.	
.05	41.55					14 45 58.71	— 16 2			58.4	61.8	63.0	62.8	61.50
11.37	41.55									58.5	61.5	63.2	63.0	61.55
.07	41.61	— 1 3.85	+ 1 44.78	66 51 41.68	42.354	17 40 24.33	27 58 20.43			58.5	61.9	62.8	63.0	61.55
		28.02	1 44.95	66 52 17.68										
.05	41.66	— 36.20	1 12.54	51 51 37.96		20 9 21.20	12 57 58.71	— 1.46	— 12.32	58.47	61.73	63.00	62.93	61.53
.05	41.66	+ 1 32.64	+ 1 12.59	51 53 46.55		20 9 45.11	— 13 0 7.30	1.47	12.30					
.07	41.67	2 29.34	— 5.88	354 8 24.58		20 36 20.22	+ 44 45 14.67	1.13	29.36		Mic.	42.309	—11	rdgs.
7.07	41.68	1 20.60	— 0.87	0 52 19.22		21 0 12.26	38 1 20.03	1.74	31.38					
.05	41.68	+ 1 23.19	.87	0 52 21.81		21 0 13.86	38 1 17.44	1.74	31.38					
.04	41.68	— 43.07	+ 9.38	9 16 21.89		21 6 34.81	29 37 17.36	1.57	26.78					
.14	41.68	— 44.17	— 24.46	336 56 1.99		21 15 1.04	+ 61 57 37.26	1.45	32.21		Nov.	9,	18h.	
										1.4	4.7	6.0	5.0	4.28
.03	41.70	+ 40.42	+ 1 7.45	49 33 46.32		22 25 47.01	— 10 40 7.07			1.1	4.3	5.4	4.4	3.80
.07	41.71	57.21	2 31.33	69 18 27.61		22 49 23.30	— 30 24 48.36	2.28	8.29					
.04	41.72	+ 1 53.42	+ 26.30	24 29 17.92		22 57 20.04	+ 14 24 21.33	2.37	22.20	1.25	4.50	5.70	4.70	4.04
		— 16.12	— 1 7.80	310 22 44.44							Mic.	42.257	—10	rdgs.
		16.63	1 7.80	43.88										
		15.77	1 7.79	44.68										
		16.11	1 7.79	44.27										
3.77	41.76	16.35	1 7.79	43.96		1 6 9.39	+ 88 30 55.43	68.03	19.03					
		16.58	1 7.80	43.67							Nov.	13,	22.5h.	
		16.74	1 7.80	43.45						1.7	3.5	5.7	5.2	4.03
										2.0	4.3	5.7	5.5	4.37
		18.21	1 7.81	41.91						1.9	3.5	5.4	4.2	3.75
		15.99	— 1 7.81	44.08										
.05	38.37					14 58 1.28	— 16 55			1.87	3.76	5.60	4.97	4.05
.05	38.37													
.07	38.28	2 53.88	+ 1 55.92	66 50 2.41	42.375	17 48 7.86	27 56 41.06				Mic.	42.265	—10	rdgs
		— 2 18.29	1 56.12	66 50 38.20										
	38.13	+ 46.52	1 9.66	49 34 59.31		22 25	10 41 20 06							
.07	38.13	+ 48.48	2 36.71	69 18 28.51		22 49 23.17	— 30 24 49.26	2.25	— 7.96					
.04	38.13					22 57 19.85	+ 14 24	2.34						
.04	38.11					23 32 16.72	4 49	2.50						
.04	38.09					0 5 33.66	14 21	2.73						
3.77	37.70					13 6 9.00	+ 88 30	66.25						
4.09	37.43	— 50.56	+ 1 52.44	66 41 4.20	42.354	17 56 52.12	— 27 47 45.70							
		9.20	+ 1 52.58	66 41 45.70										
16.39	37.37					21 58 47.26	47 41	2.02						
12.79	37.43					22 49 23.39	— 30 24	2.18						
.02	+ 37 35					22 57 19.79	+ 14 24	— 2.28						

bject.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
	m. s.	m. s.	′ ″
on -	+ 1 2.39		
i - -		1 7.54	
nus -	+ 1 42		18.00
i - -		1 7.84	
nus -	+ 1.48		17.90
nus -	+ 1.58		20.75

2. + 0.16 applied for defective illumination.
5. Observed for dec. at wire V.
6 to 14. Observed for dec. at 51m. 21s, 54m. 59s., 58m. 28s., 1m. 53s., 5m. 28s., 9m. 0s., 12m. 28s., 15m. 28s., 19m. 42s.
7, 8, 9, 11, 12, 13, 31, 31, 32, 34, 35, 36. Circle readings interpolated.
18. + 0″ 14 applied for defective illumination.
29 to 37. Steady. Misty sky. Observed for dec. at 51m. 20s., 54m. 44s., 58m. 24s., 1m. 45s., 5m. 27s, 9m. 6s., 12m. 25s., 15m. 46s., and 19m. 28s.
41. + 0′.13 applied for defective illumination.
47. At wire IV, nearly invisible through thin cloud.
49. A little unsteady. Applied + 0.12 for defective illumination.

DATE.	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire IV.	Revs.	In.	°	°
1850. Nov. 13	1	Moon, 1st L. -	25.69	36.80	48.15	59.57	10.88	22.26	34.16	23 2 59.64										
	2	β Aquarii - - -	25.30	36.05	46.93	58.10	9.13	20.16	31.84	23 6 58.21										
	†3	ψ³ Aquarii - - -	0.89	11.55	22.88	34.38	45.54	56.57	8.40	23 11 34.32	49 18 23.4	18.0	22.0	22.5	21.47		41.757	30.038	52.2	43.0
	†4	Flora - - - -	3.30	14.28	25.22	36.60	47.61	58.43	10.41	23 59 36.55	49 32 59.2	57.4	60.2	59.8	59.15		43.064	30.044	50.8	42.8
	†5	α Cassiopeiæ - -	29.85	48.95	8.43	28.24	47.76	6.88	27.49	0 32 28.23	343 8 58.4	57.6	58.5	59.8	58.57		45.333	30.054	50.2	44.5
	†6	Polaris - - -	15.0	18.0	18.0	25.0	24.5	28.5	57.10	1 5 26.57										
	†7								6.0		307 27 1.5	0.7	8.4	6.3	4.22		40.800	30.116	53.0	45.8
	8														4.18		40.635			
	9							34.0							4.14		40.550			
	10														4.10		40.430			
	11														4.06		40.375			
	12						39.0								4.02		40.380			
	13														3.98		40.380	30.120	52.5	46.6
	†14	Polaris, S. P. -				38.5				13 5 37.21					3.94		40.372			
	15										1.4	0.0	8.0	6.2	3.90		40.360			
	16														3.88		40.380			
	17				48.0										3.86		40.408	30.124	52.5	47.4
	18														3.84		40.492			
	19			47.0											3.82		40.589			
	20														3.81		40.662			
	†21		48.0								1.3	0.4	7.1	5.7	3.80		40.872	30.124	52.2	47.9
	22	α Bootis - - -	36.91	48.34	59.72	11.61	23.39	34.94	47.27	14 9 11.74										
	†23	Merc'y, 1st L. & C.	2.63	14.22	25.35		48.38	0.09	12.00	14 46 37.11	54 8 59.9	55.4	65.6	60.7	60.40		46.180	30.114	53.5	53.0
14	24	Sun, 1st L. - -	1.17	12.62	23.98					15 16 12.59										
	25	Sun, 2d L. - -	17.67	29.29	40.87	52.51	4.12	15.60	26.68	15 18 52.39										
	26	Ven., 1st L. N.L.	27.48	39.60	52.19	4.46	16.93	29.39	42.43	17 58 4.64	66 36 3.0	0.2	5.6	1.5	2.58		41.825	30.072	57.5	57.5
	†27	Ven., 1st L. S. L.															43.075			
	†28	δ Ursæ Minoris -		22.5	27.5	34.0	37.5	43.5	57.0	18 21 7.00										
	29	α Lyræ - - - -	31.87	45.76	59.89	13.92	27.96	41.90	56.70	18 31 14.00	0 15 14.6	12.9	15.3	16.4	14.80		41.050	30.072	58.0	57.6
	30	α Piscis Australis -								22 49	69 14 59.2	53.8	58.9	57.9	57.45		43.880	30.060	54.5	44.6
	31	α Pegasi - - -	8.35	19.28	30.88	42.36	53.41	4.67	16.52	22 57 42.21	24 26 61.4	53.8	60.2	60.0	58.85		45.578	30.060	54.2	44.0
	32	β Aquarii - - -	24.48	35.71	46.58	57.80	8.79	19.68	31.40	23 6 57.78	45 41 59.5	51.3	57.4	58.3	56.62		45.542	30.056		43.8
	33	ψ³ Aquarii - - -		11.80	22.71	33.76	45.06	56.24	7.96	23 11 39.59	49 17 62.4	55.8	61.0	60.9	60.02		42.328	30.056	53.5	43.3
	†34										44 38 27.4	19.4	22.2	23.5	23.12		42.290	30.060	52.1	47.8
	†35	Moon, 1st & S. L.	11.70	22.96	33.99	45.29	56.38	7.60	19.35	23 50 45.32							42.120			
	†36																42.070			
	†37	γ Pegasi - - -	21.84	33.34	44.62	56.14	7.20	18.70	30.37	0 5 56.03										
	38	Sat., 1st L. N.L.		42.46	53.22	4.43	15.42	26.40	37.90	0 59 9.64	35 27 50.8	45.8	52.6	52.4	50.40		41.270	30.064	50.0	41.2
	39	Sat., 2d L. N.L.		44.04	54.73	5.72	16.72	27.61	39.33	0 59 11.36										
	40	α Cassiopeiæ - -	29.53	49.15	8.27	27.46	47.23	6.71	27.40	0 31 27.96										
	41	Polaris - - -	17.5	19.0	19.0	26.0	28.5	32.0	53.5	1 5 27.93										
21	42	Polaris, S. P. -	11.0	8.0	6.0	4.0	58.0	53.0	25.0	13 4 57.86										
	43	η Ursæ Majoris -				28.84	46.10	3.10	21.07	13 40 54.78										
	44	α Bootis - - -	6.68	18.35	30.08	41.74	53.45	5.12	17.40	14 7 41.83										
26	45	Sun, 1st L. - -	44.04	55.72	7.61	19.58	31.05	43.03	55.05	16 6 19.44										
	46	Sun, 2d L. - -	3.68	15.38	27.14	39.09	50.70	2.60	14.90	16 8 39.07										
	†47	Ven., 1st L. N.L.	35.25	47.47	59.61	11.91	24.08	36.46	49.38	18 8 12.02	65 17 60.4	56.2	62.4	61.5	60.12		44.360	29.986	53.5	60.2
	†48	Ven., 1st L. S. L.															45.800			
	†49	α Lyræ - - - -	3.60	17.52	31.31	45.67	59.65	13.58	28.37	18 30 45.67										
Dec. 11	50	Venus, N. L.								17 47	62 26 58.2	59.0	58.8	58.0	58.50		37.770	30.014	46.2	39.1
	51	Venus, S. L.															39.675			
	52	β Aquarii - - -			30.70	41.65	52.72	3.64	15.30	23 6 52.80	45 41 59.5	52.4	56.2	59.9	57.00		45.602	30.036	46.0	38.2

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Nov. 14, 22	s 37.575	l .005	— .109	+ .012	+ .088			
21, 14	67.621	l .005						
26, 17	65.695	g .002						
11, 24	53.340	g .044						
13, 3	51.091	g .044				— .75		

1 rev. = 34.″356.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	− 0.02	+ 37.35					23 4 39.36	− 9 2							
2	.02	37.35					23 6 35.54	6 51	− 2.25						
3	.02	37.34	− 20.51	+ 1 8.66	49 19 9.57		23 11 11.64	10 25 30.32	2.27	− 14.16					
4	− .02	37.34	+ 24.39	+ 1 3.51	49 34 27.04		0 0 13.87	− 10 40 47.80							
5	+ .06	37.34	+ 1 42.34	− 17.84	343 10 23.07		0 32 5.63	+ 55 43 16.18	4.13	25.07					
6	+ 3.75	37.37					1 6 7.69	88 30	64.91						
7			− 1 7.93	− 1 16.88	307 24 39.41										
8			1 7.53	1 16.86	39.79										
9			1 7.04	1 16.83	40.27										
10			1 7.73	1 16.81	39.56										
11			1 8.44	1 16.79	38.83										
12			1 7.99	1 16.77	39.26										
13			1 7.87	1 16.75	39.36										
14	− 3.97	37.31	1 8.10	1 16.73	39.11	42.428	13 6 10.55	+ 88 31 0.11	− 64.83	− 21.66					
15			1 8.53	1 16.71	38.66										
16			1 7.89	1 16.69	307 24 40.30	42.428						Nov.	14,	17h. 3	
17			1 8.04	1 16.67	39.15						0.3	1.4	5.1	8.0	2.45
18			1 7.54	1 16.65	39.65						0.8	1.8	4.9	2.7	2.55
19			1 7.03	1 16.63	40.16						0.8	3.9	4.8	2.0	2.88
20			1 9.06	1 16.61	38.14										
21			− 1 8.40	− 1 16.59	38.81						0.63	2.37	4.93	2.57	2.62
22	.01	37.53					14 8 49.26	+ 19 58	− 0.13			Mic.	42.352	−15	rdgs.
23	− .03	37.53	+ 2 8.90	+ 1 18.07	54 12 27.37		14 47 14.77	− 15 18 48.12							
24	+ 23.14	37.54					15 18 21.59	18 17							
25	− .02	37.54													
26			− 20.72	1 51.72	66 37 33.57							Nov.	14,	0 . 3	
27	.02	37.55	+ 22.13	1 51.89	66 38 16.59		17 58 43.79	− 27 44 15.83			2.2	4.4	5.5	5.5	4.40
28	− 90.98	37.56					18 20 13.58	+ 86 36	+ 27.46		2.0	4.5	5.7	5.0	4.30
29	+ .01	37.56	− 47.34	0.25	0 14 27.71		18 31 51.57	+ 38 39 11.84	− 0.02	− 20.10					
30		37.58	+ 54.12	2 34.59	69 18 26.16	42.305	22 49	− 30 24 46.91	2.16	7.62	2.10	4.45	5.60	5.25	4.35
31	− .01	37.58	− 1 52.46	26.89	24 29 18.20		22 57 19.78	+ 14 24 21.05	2.27	22.13		Mic.	42.178	−10	rdgs.
32	.02	37.58	+ 1 51.22	1 0.55	45 44 48.39		23 6 35.34	− 6 51 9.14	2.24	15.18					
33	5.60	37.58	+ .80	+ 1 8.67	49 19 9.49		23 11 11.57	10 25 30.24	2.25	14.11					
34			− .52	−52 43.37	43 45 39.23										
35	.02	37.58	3.02	52 43.37	36.73		23 52 25.29	− 4 51 58.67				Dec.	11,	0h.	
36			1.94	−52 43.37	37.81						4.9	7.5	7.7	11.5	7.90
37	.01	37.59					0 5 33.61	+ 14 21	2.68		5.4	5.6	7.6	11.0	7.40
38	5.53	37.59									4.9	6.9	6.4	10.4	7.15
39	− 5.53	37.59	− 35.54	+ 50.53	35 28 5.39		0 59 42.56	3 25 33.86							
40	+ .06	37.59					0 32 5.61	55 43	4.12		5.07	6.67	7.23	10.96	7.48
41	+ 3.75	37.59					1 6 9.27	88 30	64.64			Mic.	42.263	−10	rdgs.
42	− 3.97	67.61					13 6 1.50	88 31	− 61.69						
43	25.65	67.62					13 41 36.75	50 4	+ 0.69						
44	.01	67.62					14 7 49.44	+ 19 58	− 0.26						
45	.02	65.70										Dec.	11,	2h.	
46	.02	65.70					16 8 34.94	− 20 59			59.2	61.3	59.8	64.5	61.20
47	− .02	65.69	+ 1 9.30	1 39.01	65 20 48.43	42.343	18 9 19.65	− 26 27 33.99			60.0	62.4	60.9	66.0	62.32
48			+ 1 58.77	1 39.17	65 21 38.06										
49	+ .02	65.69					18 31 51.38	+ 38 39	+ .16	17.22	59.60	61.85	60.35	65.25	61.76
50			− 2 7.48	1 52.18	62 8 14.94	42.481	17 48	− 23 15 8.45				Mic.	42.475	−6	rdgs.
51			− 1 2.03	1 52.26	62 9 20.47										
52	− 11.33	+ 53.37	+ 1 47.24	+ 1 1.23	45 44 45.47		23 6 34.84	− 6 51 6.22	− 1.91	− 13.16					

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
2	Moon -	+ 1 1.95		
15	Saturn -		.56	
23	Mercury -	+ 0.16		
24	Sun - -		1 8.32	
26	Venus -	1.62		21.50
35	Moon -	1 2.41		
38	Saturn -		0.86	
45	Sun - -		1 9.81	
47	Venus -	1 94		24.82
50	Venus -			32.76

3, 6, 7 to 21, 23, 31, 32, 42, 47. Unsteady.
5, 41. Blurred and unsteady.
4. Exceedingly faint. Observed for dec. at 59*m*. 43*s*.
7 to 21. Obs'd for dec. at 48*m*. 27*s*., 52*m*. 34*s*., 55*m*. 30*s*., 59*m*. 48*s*., 2*m*. 30*s*., 3*m*. 38*s*., 4*m*. 30*s*., 5*m*. 8*s*., 6*m*. 6*s*., 7*m*. 19*s*., 10*m*. 17*s*., 13*m*. 51*s*., 16*m*. 36*s*. 20*m*. 8*s*., and 24*m*. 1*s*.
8 to 13, 15 to 21. Circle readings interpolated.
27. +0″.10 applied for def. illumination.
28. Very faint, but well defined.
34, 35, 36. Wavering. Observed for dec. at 51*m*. 47*s*., 52*m*. 7*s*., 52*m*. 23*s*.
37. Poor observation. Observed with full aperture.
48. +0.″08 applied for def. illumination.
49. Through clouds.
51. Correction for def. illumination +0 ″00.

DATE.	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
1850.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Dec. 11	1	ψ^3 Aquarii . . .		55.51	6.57	17.94	28.97	40.15	51.98	23 11 23.52	49 19 3.5	0.5	3.0	6.4	3.35	IV.	40.748	30.040	46.5	37.6
	2	Moon, 1st & S. L.	43.55	54.63	5.83	17.22	28.33	39.80	51.60	23 30 17.28	46 44 7.8	1.5	8.7	11.5	7.38		40.780	30.042	45.8	36.6
	3	27 Piscium . . .			57.33	8.14	19.49	30.26	41.80	23 51 19.40	43 15 51.5	47.7	59.0	56.9	53.78		42.295	30.042	45.8	35.8
	4	33 Piscium . . .		26.13	37.16	48.12	59.29	10.52		23 57 48.24	45 26 57.2	50.7	56.3	60.0	56.05		39.548	30.048	45.1	35.9
	5	γ Pegasi . . .				40.14	51.31	2.50	14.72	0 4 57.17										
	† 6	Polaris . .	36.0								310 24 6.7	8.4	12.7	6.0	8.45		41.862	30.056	44.2	33.3
	7			46.0													41.832			
	8				43.0	49.0	52.0			1 4 52.29							41.820			
	† 9																41.820			
	10							57.0									41.795			
	† 11								23.0								41.745			
	12	α Arietis . . .									16 8 55.9	51.3	57.2	61.3	56.42		40.900	30.072	44.0	32.2
13	†13	α Cassiopeiæ . .	14.87	34.74	53.82	13.15	32.80	52.11	12.90	0 31 13.48	343 11 56.3	57.0	59.6	63.2	59.02		40.169	30.396	34.5	24.4
	†14	20 Ceti		9.97	20.65	32.09	42.51	53.76	5.45	0 44 37.40	40 47 54.6	49.7	55.7	57.6	54.40		46.390	30.398	34.0	23.7
	†15	Sat., 1st L. } N.L	46.27	57.63	8.36	19.32	30.51	41.10	52.65	0 55 19.41										
	16	Sat., 2d L. } N.L	47.53	58.61	9.47	20.39	31.64	42.25	53.80	0 55 20.53	36 1 41.4	33.9	39.2	42.4	39.20		39.217	30.400		23.7
	17	Moon, 1st & S. L.	44.47	55.40	6.64	18.00	29.08	40.40	52.03	1 5 18.03	37 49 23.7	17.2	20.4	26.2	21.88		39.294	30.404	33.5	23.5
	18	ν Piscium . . .	16.19	27.29	38.64	49.77	0.45	11.62	23.24	1 32 49.60	34 5 62.3	54.3	59.5	62.4	59.62	V.	37.680	30.398	33.2	24.2
	19	Uranus . . .								1 38	29 11 20.0	11.9	16.3	21.4	17.40	IV.	38.437	30.398	32.8	24.4
	20	α Arietis . . .	20.09	31.65	43.80	55.50	7.65	19.43	31.97	1 57 55.73	16 9 41.3	37.2	41.2	46.3	41.50		39.597	30.394	32.5	23.3
	21	γ Ceti	10.82	21.83	32.69	43.71	54.79	5.76	17.39	2 34 43.86	36 14 62.9	57.4	61.0	65.7	61.75		45.270	30.398	32.5	21.8
	22	β Ursæ Minoris .	20.74	39.60	58.53	15.56	34.30	52.53	9.23	2 50 15.78	293 42 1.2	5.5	8.7	12.8	7.05		41.978	30.406	31.8	23.2
	23	γ^1 Eridani . . .	40.07	51.38	2.54	13.75	25.07	36.32	48.54	3 50 13.95	52 44 57.8	52.9	58.4	61.5	57.65		38.540	30.420	32.5	21.7

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At		1 rev. = 34″.356.
h.	s.	s.	s.	s.	s.	″	h.	revs.	
Dec. 13, 3	s 51.091	g .044	− .109	+ .012	+ .088				

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	″	′	″	″	″	″	″
1	— 5.64	+ 53.37	— 59.52	+ 1 9.47	49 19 13.30		23 11 11.25	— 10 25 34.05	— 1.92	— 12.08					
2	.02	53.36	58.42	—53 26.67	45 49 42.29		23 32 12.57	6 56 3.04							
3	11.03	53.34	6.38	+ 56.47	43 16 43.87		23 51 1.71	4 23 .4.62	2.16	13.26		Dec.	13,	34. 5.	
4	.12	53.34	1 40.75	+ 1 0.89	45 26 16.19		23 57 41.45	— 6 32 36.94	2.19	12.48	59.6	61.7	60.2	65.4	61.72
5	— 17.03	53.34					0 5 33.48	+ 14 21	2.40		58.2	60.9	60.4	63.7	60.80
											58.7	61.5	60.4	63.7	61.08
6			21.10	— 1 10.84	310 22 36.51										
7			22.77	1 10.84	34.84										
8			22.71	1 10.84	34.90						58.83	61.37	60.33	64.27	61.20
9	+ 3.75	53.29	22.57	1 10.84	35.04		1 5 49.33	88 31 4.11	49.53	29.37					
10			22.96	1 10.85	34.64							Mic.	42.440	—10	rdgs.
11			22.68	— 1 10.85	34.92										
12			55.88	+ 17.52	16 8 18.06			22 45 21.19	3.30	15.73					
13	+ .06	51.19	— 1 19.22	— 18.83	343 10 20.97	42.475	0 32 4.73	+ 55 43 18.28	3.47	29.27					
14	— 5.50	51.18	+ 2 14.50	+ 53.85	40 51 2.75		0 45 23.08	— 1 57 23.50	2.46	12.99					
15	.02	51.18													
16	.02	51.18	— 1 51.93	+ 51.60	35 42 38.87		0 56 11.13	+ 3 11 0.38							
17	.02	51.17	— 1 49.29	—48 29.34	36 59 3.25	42.475	1 7 12.18	— 1 54 36.00							
18	.02	51.16	+ 3 6.30	+ 42.23	34 9 48.15		1 33 40.74	+ 4 43 51.10	2.80	12.49					
19		51.15	— 2 18.73	— 34.52	29 8 24.15		1 39	+ 9 45 15.10							
20	.01	51.14	— 1 38.88	+ 18.06	16 8 20.68		1 57 46.86	22 45 18.57	3.28	15.77					
21	.02	51.11	+ 1 36.02	+ 45.94	36 17 23.71		2 35 34.95	2 36 15.54	— 3.05	— 8.15					
22	.49	51.10	— 17.07	— 2 21.50	293 39 28.48		2 51 6.39	+ 74 45 49.23	+ 5.27	+ 17.91					
23	— .02	+ 51.05	+ 3 35.85	+ 1 22.45	52 49 55.95		3 51 4.98	— 13 56 16.70	— 3.06	— 0.94					

6 to 11. At wires I, II, unsteady. Observed for dec. at 3*m*. 13*s*., 4*m*. 1*s*., 4*m*. 49*s*., 6*m*. 38*s*., 8*m*. 26*s*., and 12*m*. 12*s*.

13, 14, 15, 23. Unsteady.

17. Observed for dec. at wire IV.

OBSERVATIONS

WITH THE

PRIME VERTICAL TRANSIT INSTRUMENT,

1849.

NATIONAL OBSERVATORY.

DATE.	No. for ref.	OBJECTS.	Vertical.	Telescope.	TIMES OF TRANSIT OVER WIRES. A.	B.	C.	D.	E.	F.	G.	Telescope.	TIMES OF TRANSIT OVER WIRES. G.	F.	E.	D.	C.	B.	A.
					h. m. s.	s.	s.	s.	s.	s.	s.		s.	s.	s.	s.	s.	s.	m. s.
1849. Jan. 4	†1	Lalande, 2603 - - -	Zen.	S.	1 15 28.0	58.0	34.0	59.5	31.0			N.			14.5	44.2	9.0	35.0	22 5.0
	2				16.894	.767	.645	.605	.545						.876	.800	.705	.648	22.562
	†3	Anonymous - - -	Zen.	S.	1 44 42.5	19.0	47.0	12.0	42.0			N.			43.5	18.0	41.8	10.0	57 38.0
	4				21.410	.115	.905	.700	.500						.465	.296	.163	.992	18.765
	†5	Anonymous - - -	Zen.	S.	1 47 21.5	52.0	13.0	37.5	2.0			N.			46.0	26.0	54.0	19.0	54 49.0
	6				17.618	.412	.328	.219	.123						.623	.536	.485	.450	22.305
	7	Anonymous - - -	E.	N.	2 2 8.8	41.2		56.5	31.0	0.3	43.4	S.	11.2	0.4	39.5	21.1		51.5	12 32.2
	8		W.	S.	3 23 57.5	39.0		9.0	50.8	29.5	19.3	N.	47.2	24.3	59.5	34.2		48.0	34 21.5
	†9	Anonymous - - -	Zen.	S.	2 21 7.0	31.0	56.0	15.0	36.0			N.			39.0	8.2	37.0	1.5	26 24.5
	10				17.808	.733	.688	.652	.600						.854	.841	.760	.686	21.630
	†11	Lalande, 5115 - - -	Zen.	N.	2 34 28.0	56.0	24.0	46.0	17.0			S.			36.0	7.5	28.5	18.0	41 42 5
	12				22.839	.980	.072	.135	.275						.030	.095	.143	.274	16.343
5	13	Lalande, 4667 - - -	E.	N.	0 50 58.2	14.0	32.9	50.2	6.0	22.3	39.5	S.	49.8	6.9	24.1	41.2	58.8	18.0	55 34.5
	14		W.	S.	3 52 15.0	31.5	51.0	8.5	25.5	41.4	0.0	N.	11.0	28.0	44.2	0.2	18.0	36.9	56 53.0
	15	Anonymous - - -	E.	S.	1 19 59.3	21.0	42.1	2.9	25.0	45.5	7.2	N.	35.2	58.2	20.0	42.1	4.3	27.0	25 49.6
	16		W.	N.	3 42 41.0	5.0	25.3	48.1	11.1	32.0	55.1	S.	23.8	46.0	6.0	26.8	49.0	9.0	48 30.5
	†17	Lalande, 4784 - - -	E.	N.	1 30		19.3	46.5	12.8	40.5	58.2	S.	19.5	37.7	6.4	34.8	4.0		35
	18		W.	S.	3 20		32.8	1.5	29.8	58.0	16.0	N.	37.5	54.8	22.0	48.8	15.8		25
	19	Lalande, 4387 - - -	E.	S.	1 41 59.0	22.2	45.3	12.7	36.2	52.0	17.2	N.	21.0	49.5	5.0	33.0	5.5	32.5	49 0.0
	20		W.	N.	2 41 15.5	43.8	12.0	44.2	11.0	28.2	57.0	S.	59.8	25.5	40.8	3.5	31.8	55.9	48 16.5
10	†21	Lalande, 7391 - - -	E.	N.	3 19		31.2	17.5	4.9	55.5	30.2	S.	56.5	34.8	31.0	31.5	33.5		28
	22		W.	S.	4 16		49.2	55.0	51.0	50.0	27.8	N.	50.4	32.0	21.5	8.0	56.0		25
11	23	Lalande, 5834 - - -	E.	S.	1 47 3.8	25.1	46.8	6.8	28.2	49.0	11.0	N.	38.2	1.6	23.8	45.0	5.3	30.0	52 52.5
	24		W.	N.	4 11 16.0	39.1	1.2	23.0	44.5	5.8	28.5	S.	55.1	18.0	37.9	58.8	20.0	41.1	17 2.8
	†25	Lalande, 5682 - - -	E.	N.	1 56 21.5	46.1	14.2	42.0	7.2	33.0	59.0	S.	49.5	19.2	46.0	13.0	43.2	12.8	3 39.5
	26		W.	S.	3 50 48.2	15.3	45.5	17 0	44.0	11.0	38.4	N.	31.5	58.5	24.0	50.8	16.3	45.0	58 09.3
Feb. 9	†27	Anonymous - - -	E.	S.	4 41 25.8	55.0	25.3	56.8			30.0	N.	45.0			26.9	1.5	35.0	50 12.0
	†28		W.	N.	6 17 19.0	56.0	30.8	5.3			46.5	S.	2.2			35.4	5.2	36.1	26 6.5
	29	Aurigæ, (1935.) - -	E.	N.	4 52 56.0	10.8	46.8	13.0	38.9	3.8	30.8	S.	15.2	42.8	8.0	36.5	3.6	34.2	60 0.4
	30		W.	S.	6 50 34.2	1.0	30.9	59.0	27.8	53.1	20.2	N.	4.8	31.0	57.0	21.8	48.2	15.7	57 39.2
10	31	Lalande, 10650 - -	E.	N.	4 34 49.2	14.8	44.3	12.8	40.3	7.2	35.3	S.	31.9	0.2	30.2	59.0	31.1	4.9	42 33.4
	32		W.	S.	6 22 34.0	2.8	37.2	8.2	37.6	6.8	36.2	N.	31.8	0.1	27.3	54.8	23.2	53.0	30 18.3
	33	Lalande, 11529 - -	E.	S.	4 58			14.2	40.8	4.3	32.5	N.	24.7	54.1	19.2	48.1			62
	34		W.	N.	6 54			6.2	34.8	0.3	29.8	S.	21.4	49.1	13.9	40.3			58
15	35	α^2 Geminorum - - -	E.	S.	4 49 38.2	48.0	58·2	8.0	18.3	28.2	38.3	N.	22.1	32.6	42.0	51.8	2.6	12.2	52 22.1
	36		W.	N.	9 58 52.2	2.0	12.0	22.2	32.0	42.1	52.0	S.	36.0	46.2	56.0	6.8	16.0	25.1	61 35.8
	37	Lalande, 12134 - -	E.	N.	4 57 21.8	39.0	1.8	23.3	43.0	3.2	24.0	S.	43.1	4.2	24.1	46.8	8.3	31.2	62 52.2
	38		W.	S.	7 26 50.3	10.5	34.0	57.1	17.1	38.0	58.4	N.	19.1	39.1	59.5	19.0	41.0	2.1	32 22.0
	39	Lalande, 13011 - -	E.	N.	5 15 51.3	9.0	29.1	48.8				S.				55.8	16.0	37.0	20.57.2
	40		W.	S.	7 57 43.1	0.8	24.1	43.2				N.				52.0	10.8	31.0	62 49.0
	41	Lalande, 13873 - -	E.	S.	5 24 17.2	34.0	49.2	6.1	21.8	36.1	53.0	N.	3.2	20.5	35.2	52.0	8.7	24.1	28 41.1
	42		W.	N.	8 37 4.8	21.0	37.8	53.8	11.0	26.1	43.1	S.	52.0	8.0	23.9	39.2	55.5	11.0	41 27.2

1. Observed through clouds; magnitude uncertain.
18. Wind very high; clock-beat almost inaudible.
13, 20. Bad night for observing; stars steady, but high wind renders clock-beat inaudible.
21, 22. Very unsteady; high wind.
25. Faint and unsteady.
27. Unsteady.
28. Faint after reversing.

No. for ref.	LEVEL READINGS. Means. N.	Means. S.	S.—N. Div.	Corr. for Level.	Mean of Wires.	Observed North Declination.	Reduct'n to 1850.0	Magnitude.	Observer.	OBJECTS.
				″	h. m. s.	° ′ ″	″			
1, 2	25.45	41.00	+ 15.55	+ 6.84		38 52 21.92	+ 12.25	8	H.	Lalande, 2603.
3, 4						38 53 39.52	12.58	8		Anonymous.
5, 6	26.20	41.35	15.15	6.67		38 52 30.27	12.59	9.10		Anonymous.
7	26.20	41.65	15.45	6.70	2 48 15.12	38 26 27.03	12.75	9		Anonymous.
8	27.10	42.20	15.10							
9, 10	26.55	41.65	15.10	6.64		38 52 49.44	12.69	8		Anonymous.
11, 12	26.70	41.70	15.00	6.60		38 52 8.69	12.67	9		Lalande, 5115.
13	25.05	40.70	14.65	6.43	2 23 54.98	36 39 58.47	13.31	8.9		Lalande, 4667.
14	26.15	40.35	14.20							
15	25.40	40.65	15.25	6.43	2 34 15.29	37 31 20.18	13.03	9		Anonymous.
16	26.10	40.85	14.75							
17	25.40	40.60	15.20	6.63	2 27 47.83	38 4 47.70	12.89	6.7		Lalande, 4784.
18	25.70	40.85	15.15							
19	25.60	40.55	14.95	6.64	2 15 8.45	38 39 29.48	12.74	9		Lalande, 4387.
20	25.60	40.85	15.25							
21	29.65	41.00	11.35	5.17	3 52 42.38	38 40 14.19	11.49	9		Lalande, 7391.
22	29.70	41.85	12.15							
23	27.70	42.90	15.20	6.42	3 2 3.53	37 29 35.09	12.65	8.9		Lalande, 5834.
24	29.75	44.10	14.35							
25	27.75	43.20	15.45	6.54	2 57 15.04	38 0 48.05	12.57	9.10		Lalande, 5682.
26	29.50	44.00	14.50							
27	26.85	37.40	10.55	4.61	5 33 45.81	38 16 27.75	6.06	9		Anonymous.
28	28.20	38.70	10.50							
29	27.00	37.70	10.70	4.57	5 55 17.63	37 57 47.07	5.06	7		Aurigæ, (1935.)
30	28.40	38.65	10.25							
31	25.15	37.35	12.20	5.33	5 32 33.78	38 6 47.50	6.10	9		Lalande, 10650.
32	26.05	38.25	12.20							
33	25.50	37.45	11.95	5.36	5 58 27.11	37 59 35.36	4.83	7.8		Lalande, 11529.
34	25.95	38.55	12.60							
35	28.60	40.20	11.60	5.12	7 25 37.11	32 12 44.14	1.25			α^2 Geminorum.
36	29.75	43.40	13.65							
37	28.30	40.70	12.40	5.33	6 14 51.19	37 23 11.85	3.77	8.9		Lalande, 12134.
38	30.10	42.15	12.05							
39	28.55	40.95	12.40	5.21	6 39 19.89	37 7 24.57	2.52	9		Lalande, 13011.
40	30.55	42.00	11.45							
41	28.55	41.25	12.70	+ 5.20	7 2 52.76	36 22 8.99	+ 1.49	9		Lalande, 13873.
42	30.75	42.20	+ 11.45							

		h. m. s.
1, 2.	Assumed clock time of transit	= 1 18 52
3, 4.	Do. do. do.	= 1 51 51
5, 6.	Do. do. do.	= 1 51 53
9, 10.	Do. do. do.	= 2 23 44
11, 12.	Do. do. do.	= 2 38 37

DATE.	No. for ref.	OBJECTS.	Vertical.	Telescope.	TIMES OF TRANSIT OVER WIRES. A.	B.	C.	D.	E.	F.	G.	Telescope.	TIMES OF TRANSIT OVER WIRES. G.	F.	E.	D.	C.	B.	A.
1849.					h. m. s.	s.	s.	s.	s.	s.	s.		s.	s.	s.	s.	s.	s.	m. s.
Feb. 19	†1	α^2 Geminorum	E.	N.	4 49 41.0	52.0	1.3	11.0	21.8	32.0	41.5	S.	20.4	31.0	40.2	51.0	1.0	11.8	52 20.3
	2		W.	S.	9 58 55.5	5.2	16.0	26.7	36.2	46.0	56.1	N.	35.1	45.2	54.9	4.3	15.2	26.2	61 35.5
	3	Lalande, 14806	E.	S.	5 34	21.7	35.1	48.1	1.2	15.2	29.1	N.	27.3	42.0	54.5	8.8	21.9	36.0	37
	4		W.	N.	9 21	1.1	14.4	28.0	42.7	55.7	10.0	S.	8.0	22.8	35.1	48.9	2.2	15.8	24
	5	Lalande, 14218	E.	N.	5 47 15.3	33.0	52.2	11.3	30.2	47.0	6.2	S.	21.2	39.2	58.0	17.0	36.9	58.0	52 16.3
	6		W.	S.	8 32 59.1	17.2	37.9	58.3	17.0	35.2	54.0	N.	7.1	26.8	43.9	2.8	21.7	41.8	37 59.0
	7	Anonymous	E.	S.	7 15			22.0	45.0	8.6	33.0	N.	14.0	39.1	2.2	27.0			19
	8		W.	N.	9 24			57.0	22.3	45.9	10.4	S.	54.0	17.8	39.8	3.9			29
	9	Anonymous	E.	N.	7 58 05.0	42.0	25.8	8.1	50.3	29.2	15.0	S.	17.5	5.8	54.2	43.5	39.5	40.5	70 34.0
	10		W.	S.	9 04 58.5	50.0	49.0	44.3	33.3	24.5	12.0	N.	13.5	57.2	37.5	20.0	2.8	48.0	17 25.3
23	11	θ Aurigæ	E.	N.	4 28 13.8	31.3	52.4	12.1	30.9	49.6	9.2	S.	26.2	46.4	6.2	25.3	46.8	8.2	33 27.1
	12		W.	S.	7 06 49.2	8.2	30.0	57.2	10.5	29.6	49.9	N.	7.8	27.6	46.1	5.0	24.9	45.5	12 3.2
	13	Anonymous	E.	N.	5 19 29.0	51.8	18.0	42.2	6.0	29.5	53.8	S.	31.9	56.0	20.8	46.0	12.0	41.4	26 4.9
	14		W.	S.	7 25 26.3	51.2	19.0	45.3	10.3	35.1	0.0	N.	39.0	2.8	26.2	50.0	16.2	41.1	32 3.3
	15	Anonymous	E.	N.	5 19 32.9	55.0	21.0	45.1	9.3	32.2	56.3	S.	34.3	59.2	24.0	49.0	14.5	45.0	26 8.0
	16		W.	S.	7 25 24.2	48.5	16.5	43.0	8.0	32.6	57.3	N.	36.9	1.0	24.0	47.2	14.0	39.0	32 0.8
Mar. 7	17	Lalande, 14120	E.	S.	5 42 49.8	8.1	26.0	43.3	1.8	19.0	37.8	N.	55.0	14.2	32.0	50.8	9.3	27.6	47 47.0
	18		W.	N.	8 32 37.0	56.3	15.2	33.8	52.7	10.3	28.8	S.	46.0	5.2	22.5	40.8	58.4	16.2	37 34.3
	19	Lalande, 14499	E.	N.	5 57	9.4	29.8	49.2	7.3	26.1	44.4	S.	1.0	20.0	38.2	57.2	17.7	39.0	61
	20		W.	S.	8 40	50.2	11.4	31.8	50.3	9.2	28.1	N.	43.3	2.3	20.2	38.3	58.0	18.2	45
	21	Lalande, 14484	E.	N.	6 36 21.8	55.2	34.5	11.3	47.8	24.1	2.5	S.	37.7	19.3	59.7	42.0	26.3	15.3	46 57.4
	22		W.	S.	7 54 50.0	32.0	20.8	6.3	48.2	28.8	9.3	N.	46.3	24.5	0.2	37.0	14.6	53.8	65 26.5
	23	Lalande, 13747	Z.	S.	6 56 51.5	19.0	36.8	58.0	16.0			N.			52.0	19.0	39.0	3.0	62 24.5
	†24				12.782	.703	.626	.595	.545						.835	.790	.733	.700	26.634
8	25	α^1 Geminorum	E.	S.	4 47 56.2	7.0	16.8	26.3	36.9	46.0	56.3	N.	39.3	50.0	59.5	9.8	19.8	30.0	50 40.0
	26		W.	N.	9 57 09.8	19.7	29.2	39.8	49.2	0.0	10.2	S.	53.0	3.2	13.2	23.1	33.0	43.1	59 53.1
	27	α^2 Geminorum	E.	S.	4 47 57.1	8.0	18.2	27.1	38.0	46.9	57.0	N.	40.2	50.8	0.2	10.8	20.5	30.8	50 41.0
	28		W.	N.	9 57 09.8	19.7	29.2	39.8	49.2	0.0	10.2	S.	53.0	3.2	13.2	23.1	33.0	43.1	59 53.1
	29	Lalande, 14465	E.	N.	5 19		38.4	52.2	5.0	18.0	30.2	S.	22.3	35.0	48.0	1.3	15.0		22
	30		W.	S.	9 14		42.9	57.0	10.0	22.5	36.0	N.		41.2	53.0	6.2	20.0		17
	31	o Geminorum	E.	S.	5 26 16.2	29.1	42.1	54.5	7.2	19.3	33.0	N.	28.3	41.3	54.0	7.2	19.0	33.6	29 46.3
	32		W.	N.	9 26 44.7	58.2	10.8	24.0	37.2	49.0	2.8		59.0	12.1	23.8	37.0	50.0	2.3	30 15.8
	33	Lalande, 15882	E.	N.	6 12	48.2	4.2	19.4	33.9	48.2	3.1	S.	0.7	14.4	30.2	45.0	0.2	16.3	16
	34		W.	S.	9 42	21.2	37.2	52.4	7.8	22.0	37.2	N.	35.0	49.3	3.8	18.2	33.8	49.2	45
April 5	35	Lalande, 21563	E.	N.	9 30 36.5	51.8	9.0	25.8	41.0	55.9	12.2	S.	14.2	30.0	46.8	3.3	19.0	35.8	34 52.0
	36		W.	S.	12 45 28.2	45.1	0.7	17.8	33.8	49.0	5.1	N.	7.2	23.1	39.2	54.0	10.2	27.2	49 41.9
10	37	Ursæ Majoris, (3965)	E.	N.	9 32		58.0	11.2	23.3	36.5	49.5	S.	41.3	54.8	7.7	20.8	34.2		35
	38		W.	S.	13 29		35.2	49.3	2.2	15.0	28.5	N.	20.5	33.1	46.0	58.8	12.4		32
	39	Lalande, 22565	E.	S.	9 47 46.3	59.2	12.0	24.0	36.3	48.3	2.5	N.	55.0	8.5	20.8	32.8	45.8	59.0	51 12.0
	40		W.	N.	13 51 50.3	3.0	17.0	28.3	41.9	53.3	6.3	S.	0.2	13.1	25.1	38.4	50.8	2.9	55 16.0
	41	α Bootis	E.	N.	9 53 53.0	5.7	18.2	31.0	43.2	56.3		S.		44.5	58.3	11.2	24.0	36.2	56 49.1
	42		W.	S.	18 19 43.1	56.2	8.9	21.3	34.3	47.0		N.		36.2	48.8	1.9	14.2	36.9	22 39.7

1. The whole record, Tel. N, has been increased 20*s*.
4. Level reading assumed the same as on line 8.
23, 24. Assumed clock time of transit = 6*h*. 59*m*. 51*s*.

No. for ref.	LEVEL READINGS. Means. N.	S.	S. — N.	Div.	Corr. for Level.	Mean of Wires.	Observed North Declination.	Reduct'n to 1850.0	Magnitude.	Observer.	OBJECTS.
					"	h. m. s.	° ′ ″	″			
1	26.65	41.70	+	15.05	+ 6.29	7 25 38.37	32 12 43.80	+ 0.90		H.	α^2 Geminorum.
2	27.80	43.75		15.95							
3	27.45	41.60		14.15	6.26	7 29 18.57	35 22 45.24	— 0.05	6.7		Lalande, 14806.
4											
5	26.95	42.15		15.30	6.59	7 12 37.27	37 2 14.84	+ 0.41	6.7		Lalande, 14218.
6	27.80	42.95		15.15							
7	27.60	42.55		14.95	6.59	8 22 12.62	37 45 56.31	— 3.06	7.8		Anonymous.
8	27.85	43.15		15.30							
9	27.90	42.60		14.70	6.62	8 37 44.51	38 35 13.11	— 3.83	9		Anonymous.
10	27.74	43.15		15.40							
11	24.40	36.95		12.55	5.23	5 50 8.36	37 11 42.46	+ 4.74	4		θ Aurigæ.
12	26.10	37.70		11.60							
13	25.00	37.15		12.15	5.20	6 25 46.04	37 49 35.53	2.44	9		Anonymous.
14	26.15	37.85		11.70							
15	25.00	37.15		12.15	5.20	6 25 46.39	37 49 41.06	+ 2.44	11		Anonymous.
16	26.15	37.85		11.70							
17	20.75	31.25		10.50	4.19	7 10 12.11	36 56 35.39	— 0.85	8		Lalande, 14120.
18	22.85	31.60		8.75							
19	21.05	31.05		10.00	4.07	7 21 14.19	37 5 0.73	1.58	9		Lalande, 14499.
20	23.05	31.70		8.65							
21	20.95	31.10		10.15	4.17	7 20 54.04	38 28 34.22	1.97	7.8		Lalande, 14484.
22	22.50	31.40		8.90							
23 } 24 }	21.30	31.30		10.00	4.40		38 50 35.92	0.80	9		Lalande, 13747.
25	22.60	31.40		8.80	3.68	7 23 54.77	32 12 44.25	0.46			α^1 Geminorum.
26	24.90	34.25		9.35							
27	22.60	31.40		8.80	3.68	7 23 55.22	32 12 46.70	0.46			α^2 Geminorum.
28	24.90	34.25		9.35							
29	22.50	31.95		9.45	3.79	7 18 29.11	35 6 19.95	1.01	8		Lalande, 14465.
30	24.95	33.40		8.45							
31	22.50	32.00		9.50	3.80	7 28 15.64	34 55 26.20	1.55	4.5		o Geminorum.
32	25.00	33.50		8.50							
33	23.05	32.35		9.30	3.88	7 59 18.79	35 54 2.18	3.63	7.8		Lalande, 15882.
34	24.95	33.85		8.90							
35	20.30	26.55		6.25	2.49	11 10 9.81	36 18 46.58	14.52	8		Lalande, 21563.
36	22.35	27.70		5.35							
37	18.80	23.80		5.00	1.95	11 32 34.91	35 3 12.02	15.35	6.7		Ursæ Majoris, (3965.)
38	20.35	24.55		4.25							
39	18.45	24.20		5.75	2.01	11 51 31.04	34 48 2.99	15.27	9.10		Lalande, 22565.
40	20.75	24.50		3.75							
41	18.85	23.90		5.05	+ 1.22	14 8 16.21	19 58 8.12	— 12.30			α Bootis.
42	22.70	25.95	+	3.25							

DATE.	No. for ref.	OBJECTS.	Vertical.	Telescope.	TIMES OF TRANSIT OVER WIRES. A.	B.	C.	D.	E.	F.	G.	Telescope.	TIMES OF TRANSIT OVER WIRES. G.	F.	E.	D.	C.	B.	A.
1849.					h. m. s.	s.	s.	s.	s.	s.	s.		s.	s.	s.	s.	s.	s.	m. s.
April 10	1	α Coronæ Borealis . .	E.	S.	12 4 27.4	43.0	58.8	14.0	29.3	45.0	52.0	N.	41.3	48.8	4.2	20.3	35.5	51.4	8 7.0
	2		W.	N.	18 47 28.1	44.0	59.5	15.3	31.0	46.2	54.0	S.	43.0	50.1	5.8	21.3	36.7	52.1	51 7.6
	3	Anonymous . . .	E.	N.	12 12 17.0	30.0	44.2	58.3	11.0	24.9		S.		45.8	58.3	11.8	26.2	42.0	15 54.0
	4		W.	S.	16 1 51.0	3.9	18.8	33.0	46.2	59.6		N.		21.6	34.1	47.2	1.3	15.9	5 28.2
	5	Lalande, 27803 . .	E.	N.	13 13 1.0	14.1	28.8	42.9	56.0	9.6	23.3	S.	18.0	32.2	46.4	59.2	14.4	29.3	16 42.8
	6		W.	S	16 57 30.0	42.9	58.0	12.8	26.1	39.4	58.0	N.	19.2	2.1	16.2	30.0	44.1	59.0	61 11.9
	7	Anonymous . . .	E.	S.	14 39 57.0	11.9	26.0	40.9	55.4	9.0	24.3	N.	24.8	40.2	54.3	9.0	24.0	38.0	43 53.9
	8		W.	N.	18 12 22.8	38.0	52.8	7.2	21.9	36.1	51.7	S.	52.1	7.3	21.0	35.7	51.0	4.3	16 19.3
	9	α Lyræ	E.	S.	17 57 24.0	51.8	8.3	41.8	58.0	31.8		N.		52.2	29.8	48.0	27.2	47.5	64 21.0
	10		W.	N.	18 58 17.2	51.0	11.0	49.8	8.3	45.9		S.		5.2	38.8	55.9	28.5	44.8	65 13.0
May 15	11	Lalande, 27390? . .	E.	S.	13 2 56.2	10.8	24.5	38.5	53.4	6.8	21.4	N.	22.3	37.8	50.8	5.7	20.2	34.5	6 49.8
	12		W.	N.	16 39 1.2	16.0	40.3	54.1	9.9	23.0	38.1	S.	28.2	43.5	56.3	11.5	25.9	39.2	42 54.2
	13	ζ Herculis	E.	N.	13 55 18.5	28.0	38.1	48.5	58.7	7.9	17.2	S.	55.8	5.8	15.3	24.2	34.9	45.6	57 54.9
	14		W.	S.	19 11 47.9	57.1	8.0	18.2	27.2	37.1	47.3	N.	25.6	35.2	44.8	54.1	4.6	14.8	14 24.5
	15	Coronæ Borealis . .	E.	S.	14 1 57.3	12.8	27.8	43.0	58.2	12.9	28.2	N.	34.2	50.2	5.0	20.2	36.0	51.8	6 7.8
	16		W.	N.	17 23 28.3	44.8	1.1	16.3	51.9	47.1	3.0	S.	7.2	23.1	38.0	53.2	8.9	23.3	27 39.2
	17	α Lyræ	E.	S.	17 57 13.0	42.0	59.0	30.8	48.0	9.8	36.0	N.	32.0	59.2	22.9	42.1	21.5	40.8	64 13.8
	18		W.	N.	18 57 55.8	28.5	45.8	26.8	45.9	10.8	36.5	S.	36.2	1.3	23.0	39.0	12.7	29.5	64 57.0
Sept. 18	19	α Lyræ	E.	N.	17 55 34.6	16.2	4.8	51.5	36.4	22.3	11.8	S.	38.7	34.2	29.2	30.3	35.0	46.3	69 49.0
	20		W.	S.	18 53 56.5	0.5	12.5	17.0	16.3	13.8	9.0	N.	36.0	24.2	9.0	54.2	43.8	30.2	68 11.5
19	21	α Bootis	E.	N.	9 54 26.3	38.2	50.9	4.2	10.1			S.			38.2	44.0	56.0	9.0	57 21.4
	22		W.	S.	18 20 13.2	26.5	39.0	52.0	57.1			N.			26.1	32.0	44.5	57.2	23 10.2
	23	α Lyræ	E.	S.	17 55 26.8	11.0	54.8	39.7	26.5	11.0	1.8	N.	42.8	42.0	37.1	38.4	41.2	46.7	69 57.5
	24		W.	N.	18 53 46.0	57.8	1.0	6.0	6.0	01.8	59.2	S.	38.8	28.8	13.8	2.0	45.3	30.7	68 14.5
21	25	α Lyræ	E.	N.	17 55 32.0	13.0	0.6	47.9	34.0	19.8	8.0	S.	37.0	33.0	28.8	28.2	33.8	44.8	69 51.0
	26		W.	S.	18 53 52.2	58.0	8.8	13.8	14.0	9.0	5.5	N.	32.0	19.5	6.0	51.8	39.0	27.8	68 8.0
24	27	α Lyræ	E.	S.	17 55 26.9	11.2	54.8	40.0	26.5	11.3	1.2	S.	39.0	38.8	34.0	35.0	37.3	42.3	69 53.8
	28		W.	N.	18 53 45.5	55.9	1.5	5.0	5.8	59.0	58.8	N.	37.8	28.8	13.3	0.3	44.5	28.8	68 13.8
25	29	α Bootis	E.	S.	9 54 21.3	34.2	46.9	59.3	5.5	12.0	18.3	N.	23.4	29.3	36.0	42.3	54.2	8.0	57 20.6
	30		W.	N.	18 20 8.4	21.0	34.0	46.6	53.3	59.2	5.6	S.	12.0	18.2	24.2	31.0	43.2	56.2	23 8.3
	31	α Lyræ	E.	S.	17 55 26.2	10.9	55.1	39.9	26.7	10.8	1.3	N.	39.0	37.0	32.5	34.0	36.0	42.0	69 52.2
	32		W.	N.	18 53 45.3	56.2	1.0	3.2	5.2	0.3	58.9	S.	36.0	26.2	12.2	57.5	42.2	27.0	68 10.8
27	33	α Bootis	E.	S.	9 54 18.5	31.1	43.7	55.8	2.5	8.5	15.0	N.	21.0	26.2	33.3	40.0	52.1	5.9	57 18.0
	34		W.	N.	18 20 6.2	19.0	32.0	44.5	0.9	7.2	13.2	S.	9.2	15.4	21.8	28.1	40.9	54.0	23 6.2
28	35	α Bootis	E.	N.	9 54 19.0	31.7	43.9	56.4	2.6	9.6	16.0	S.	17.2	23.8	31.0	36.8	49.6	2.4	57 15.0
	36		W.	S.	18 20 6.3	19.6	32.3	45.0	51.0	57.2	4.2	N.	5.7	11.9	19.0	24.7	37.3	50.2	23 2.9
Dec. 11	37	α Lyræ	E.	S.	17 53 8.3	52.2	36.0	20.8	7.2	52.0	42.0	N.	18.2	16.0	11.0	11.8	14.5	18.0	67 27.5
	38		W.	N.	18 51 58.2	8.3	12.8	14.5	16.3	11.0	8.0	S.	46.2	36.2	20.3	6.2	50.8	34.0	66 18.0
	39	θ Andromedæ . . .	E.	S.	23 1 32.3	56.2	20.6	44.2	8.7	31.3	57.2	N.	42.8	9.0	33.8	58.8	25.9	51.0	8 18.3
	40		W.	N.	1 6 2.2	29.0	55.3	21.4	47.5	11.2	38.2	S.	24.3	49.8	13.2	37.8	2.1	25.4	12 50.3
12	41	α Lyræ	E.	N.	17 53 13.2	53.8	41.9		14.7	0.0	48.0	S.	12.5	8.0	3.0		6.2	15.5	67 20.2
	42		W.	S.	18 52 6.5	10.5	21.0		23.8	19.0	15.0	N.	40.0	28.2	14.5		46.3	34.0	66 14.0
	43	θ Andromedæ . . .	E.	N.	23 1 35.0	57.2	23.1	48.8	13.0	37.0	0.5	S.	38.5	4.3	29.4	54.6	21.0	49.8	8 14.8
	44		W.	S.	1 6 7.0	32.0	0.8	27.3	52.5	17.4	43.0	N.	20.2	45.3	9.0	33.0	57.3	23.2	12 46.8

LEVEL READINGS. Means. N.	S.	S. — N.	Corr. for Level.	Mean of Wires.	Observed North Declination.	Reduct'n to 1850.0	Magnitude.	Observer.	OBJECTS.
		Div.	″	h. m. s	° ′ ″	″			
19.25 22.25	23.65 26.95	+ 4.40 4.70	+ 2.67	15 27 47.60	27 13 29.18	— 8.74		H.	α Coronæ Borealis.
19.20 21.95	23.80 25.25	4.60 3.30	1.68	14 8 52.64	35 17 5.02	11.02	9		Anonymous.
19.85 22.15	24.70 25.35	4.85 3.20	1.71	15 7 6.20	35 26 48.35	7.20	8.9		Lalande, 27803.
21.30 22.40	25.00 26.00	3.70 3.60	1.56	16 28 8.21	35 48 54.08	— 0.81	8.9		Anonymous.
22.20 22.52	26.12 27.05	3.92 4.53	1.85	18 31 18.78	38 38 38.73	+ 11.73			α Lyræ.
17.55 20.30	24.95 27.50	7.40 7.20	3.12	14 52 55.16	35 42 22.50	— 16.47	7.8		Lalande, 27390?
18.40 20.70	25.55 28.75	7.15 8.05	3.08	16 34 51.42	31 52 47.55	7.81	3		ζ Herculis.
18.10 21.05	26.00 27.45	7.90 6.40	3.07	15 44 48.24	36 7 45.93	— 12.39	6.7		κ Coronæ Borealis.
20.50 20.50	28.25 28.85	7.75 8.35	3.54	18 31 5.10	38 38 45.52	+ 5.34			α Lyræ.
11.57 14.09	15.46 16.91	3.89 2.82	1.48	18 31 53.39	38 39 13.62	— 24.01			α Lyræ.
12.81 14.07	18.17 19.80	5.36 5.73	1.61	14 8 47.80	19 58 21.29	23.63			α Bootis.
12.91 14.55	17.80 22.14	4.89 7.59	2.74	18 31 51.04	38 39 14.53	24.00			α Lyræ.
13.51 13.93	19.79 21.17	6.28 7.24	2.97	18 31 50.62	38 39 15.69	24.14			α Lyræ.
13.27 15.25	22.24 22.97	8.97 7.72	3.67	18 31 49.67	38 39 15.26	24.22			α Lyræ.
13.75 12.15	23.86 18.77	10.11 6.62	2.45	14 8 44.73	19 58 22.71	22.81			α Bootis.
11.45 13.02	18.60 20.27	7.15 7.25	3.17	18 31 48.77	38 39 15.12	24.26			α Lyræ.
15.95 14.30	25.25 21.87	9.30 7.57	2.47	14 8 42.17	19 58 20.95	22.51			α Bootis.
14.10 11.64	23.40 18.00	9.30 6.36	2.30	14 8 40.80	19 58 21.78	22.36			α Bootis.
20.60 21.27	27.31 27.65	6.71 6.38	2.88	18 29 43.44	38 39 0.56	10.51			α Lyræ.
21.17 22.57	27.42 29.25	6.25 6.68	2.82	0 7 10.64	37 51 0.54	6.01			θ Andromedæ.
22.46 22.14	29.02 29.06	6.56 6.92	2.97	18 29 43.74	38 39 0.67	11.95			α Lyræ.
22.92	29.90	6.98	3.05	0 7 10.78	37 51 0.28	— 7.81			θ Andromedæ.

OBSERVATIONS

WITH THE

PRIME VERTICAL TRANSIT INSTRUMENT,

1850.

NATIONAL OBSERVATORY.

DATE.	No. for ref.	OBJECTS.	Vertical.	Telescope.	TIMES OF TRANSIT OVER WIRES. A.	B.	C.	D.	E.	F.	G.	Telescope.	TIMES OF TRANSIT OVER WIRES. G.	F.	E.	D.	C.	B.	A.
1850.					h. m. s.	s	s.	s.	s.	s.	s.		s.	s.	s.	s.	s.	s.	m. s.
Jan. 9	1	Lalande, 5300 -	E.	N.	1 36		11.1	35.6	58.5	21.0	44.1	S.	17.2	41.0	3.9	28.0	52.2		40
	2		W.	S.	3 45		44.2	9.3	33.0	55.9	19.2	N.	51.8	14.2	36.1	58.0	23.0		50
Feb. 22	†3	Anonymous - -	Zen.	N.	5 17 29.2	2.8	26.1	52.8	13.1			S.			2.8	30.7	19.2	44.2	28 14.3
	†4				14.438	.732	.002	.134	.299						.884	.825	.935	.678	23.180
	†5	Anonymous - -	Zen.	N.	5 19 49.6	11.1	29.6	48.2	5.2			S.			26.2	54.6	32.2	5.1	25 25.3
	†6				14.003	.153	.268	.358	.458						.358	.358	.362	.309	24.225
25	†7	Anonymous - -	Zen.	S.	6 6 28.8	50.8	12.0	33.8	51.0			N.			20.7	40.3	57.2	16.2	11 34.1
	†8				18.967	.032	.059	.145	.118						.748	.750	.628	.510	19.391
26	9	Lalande, 10650 -	E.	N.	4 35			47.80	14.58	42.83		S.		36.84	6.76	35.46			39
	10		W.	S.	6 23			37.48	6.00	35.40		N.		29.48	57.68	25.30			27
	11	Lalande, 1066 -	E.	N.	4 36				20.52	47.86	16.81	S.	12.80	40.10	8.20				40
	12		W.	S.	6 24				1.00	29.82	0.96	N.	53.21	21.98	48.40				27
Mar. 5	13	Aurigæ, (2139) -	E.	S.	5 45	15.32	54.32	33.30	15.14	54.08	37.79	N.	44.66	33.08	19.08	8.52	58.34	49.32	55
	14		W.	N.	6 55	20.00	10.20	1.40	50.40	35.00	24.60	S.	28.84	13.05	51.68	32.88	11.28	49.94	65
7	15	Aurigæ, (2139) -	E.	S.	5 45	6.68	45.68	24.80	6.80	44.98	28.04	N.	34.20	22.14	7.96	57.26	48.24	38.90	55
	16		W.	N.	6 55	7.86	58.88	48.52	38.52	34.14	12.60	S.	19.24	2.46	42.58	22.66	2.24	41.16	65
8	17	Lalande, 11959 -	E.	S.	5 25 43.05	19.95	55.60					N.					7.60	53.06	36 39.80
	18		W.	N.	6 42 53.45	40.48	25.53					S.					37.63	13.35	53 51.10
11	19	Aurigæ, (2239) -	E.	S.	6 5 49.80	32.15	14.53	56.12	40.70	23.06	10.53	N.	36.48	30.82	21.29	17.30	14.38	12.86	19 16.39
	20		W.	N.	8 8 44.68	46.46	45.78	42.69	39.91	29.81	24.66	S.	50.45	38.75	21.46	5.32	48.08	29.11	22 11.16
12	21	β Tauri - - - -	E.	S.	2 3 56.70	12.65	29.18	45.60	53.70	1.71		N.		41.40	49.73	58.22	14.31	31.06	7 47.37
	22		W.	N.	8 25 59.22	15.44	32.10	48.42	56.60	4.97		S.		45.08	53.00	1.23	17.32	33.73	29 50.00
June 10	23	α Lyræ - - - -	E.	N.	17 56	4.22	52.28	39.08	25.55			S.			14.78	11.38	18.08	25.06	68
	24		W.	S.	18 55	33.10	41.24	46.38	44.37			N.			35.75	21.95	8.60	56.51	67
Sept. 17	25	α Lyræ - - - -	E.	S.	17 56	5.00		33.30	21.05		56.16	N.	32.93		26.09	28.27		34.00	68
	26		W.	N.	18 54	44.27		54.05	55.28		51.30	S.	28.92		4.28	49.40		18.99	67
21	27	α Bootis - - - -	E.	N.	9 54 36.48	48.86	55.07	1.86	8.38	14.45		S.		4.23	10.50	16.93	23.90	29.92	56 42.60
	28		W.	S.	18 20 28.40	40.85	47.10	53.74	0.52	6.68		N.		55.60	1.83	8.46	15.29	21.31	22 33.86
	29	α Lyræ - - - -	E.	S.	17 55 18.78	2.80	47.20		19.05	3.54	53.72	N.	28.26	26.86	22.42		25.58	31.29	69 42.71
	30		W.	N.	18 53 31.30	42.20	47.57		51.25	46.05	43.72	S.	25.73	14 66	0.46		31.30	17.03	67 59.85
Nov. 25	31	α Lyræ - - - -	E.	N.	17 57 28.60	51.70	14.22	37.91	1.70	27.69		S.		42.95	11.05	37.42	6.30	32.27	64 00.26
	32		W.	S.	18 57 33.84	0.83	27.50	56.10	22.77	50.40		N.		4.66	29.60	54.36	17.86	40.35	64 03.58
Dec. 12	33	α Lyræ - - - -	E.	N.	17 57 36.15	58.41	22.35	45.22	9.57	34.75		S.		51.60	19.36	47.10	14.82	42.50	64 10.06
	34		W.	S.	18 57 49.10	16.66	43.52	12.19	39.66	6.58		N.		25.45	48.90	13.72	38.40	2.15	64 24.10
13	35	α Lyræ - - - -	E.	S.	17 57 14.90	39.06	3.25	24.77	50.46	15.90	39.50	N.	50.10	18.00	46.75	14.13	41.91	10.92	64 41.47
	36		W.	N.	18 57 21.70	52.67	20.82	50.85	17.95	47.70	12.06	S.	20.87	45.20	11.88	35.50	58.27	20.80	66 44.89
18	37	α Lyræ - - - -	E.	N.	17 57 40.30	2.66	25.06	50.28	13.87	38.47	4.41	S.	27.70	55.04	22.06	50.15	17.04	44.70	64 12.15
	38		W.	S.	17 57 53.95	22.90	49.32	17.16	44.42	11.83	40.52	N.	5.40	31.13	55.53	20.56	44.58	7.60	64 30.84
20	39	α Lyræ - - - -	E.	S.	17 58			31.71	56.12	21.48	45.35	N.	51.73	17.55	46.66	14.04			63
	40		W.	N.	18 59			0.30	27.16	56.42	21.95	S.	28.14	51.14	17.43	40.90			63

3. Assumed clock time of transit = 5 h. 23 m. 30 s.
5. Do. do. do. = 5 24 0
7. Do. do. do. = 6 7 14

No. for ref.	LEVEL READINGS. Means. N.	Means. S.	S. —N. Div.	Corr. for Level.	Mean of Wires.	Observed North Declination.	Reduct'n to 1850.0	Magnitude.	Observer.	OBJECTS.
				"	h. m. s.	° ″ ′	″			
1	19.45	26.75	+ 7.30	+ 5.60	2 43 17.86	37 45 59.53	— 1.56	6	H.	Lalande, 5300.
2	19.75	27.52	7.77							
3, 4	18.75	22.60	3.85	2 89		38 55 7.69	+ 1.49			Anonymous.
5, 6	18.75	22.60	3.85	2.89		38 55 46.93	1.49			Anonymous.
7, 8	15.40	18.20	2.80	2.10		38 53 27.42	2.16			Anonymous.
9	13.70	19.75	6.05	3.48	5 31 36.30	38 6 52.49	1.75			Lalande, 10650.
10	14.50	17.80	3.20							
11	13.70	19.75	6.05	3.44	5 32 05.14	38 7 1.00	1.75			Lalande, 10666.
12	14.60	17.80	3.20							
13	18.25	23.37	5.12	3.73	5 55 33.84	38 33.36.20	2.08	5		Aurigæ, (2139.)
14	18.84	23.71	4.87							
15	18.25	22.20	3.95	3.00	5 55 23.55	38 33 35.93	1.96			Aurigæ, (2139)
16	18.65	22.72	4.07							
17	17.45	21.35	3.90	2.92	6 09 46.71	38 29 20.22	1.75			Lalande, 11959.
18	17.95	21.85	3.90							
19	17.39	21.70	4.31	3.12	6 44 00.52	38 28 7.26	1.92	6.7		Aurigæ, (2239.)
20	17.95	21.95	4.00							
21	16.70	20.11	3.41	2.47	5 16 53.28	28 28 25.15	+ 4.86			β Tauri.
22	17.55	21.89	4.34							
23	15.04	15.78	0.74	0.46	18 31 59.89	38 38 52.66	— 3.02			α Lyræ.
24	15.57	16.07	0.50							
25	13.50	17.15	3.65	2.36	18 31 41.45	38 39 14.89	24.80			α Lyræ.
26	14.75	17.40	2.65							
27	15.55	17.00	1.45	0.62	14 08 35.28	19 58 2.86	4.92			α Bootis.
28	14.80	15.85	1.05							
29	13.82	16.30	2.48	1.63	18 31 38.05	38 39 15.19	24.98			α Lyræ.
30	14.95	16.82	1.87							
31	20.12	26.86	6.74	5.01	18 30 46.41	38 39 6.78	17.55			α Lyræ.
32	19.89	26.52	6.63							
33	16.65	24.55	7.90	5.85	18 30 59.68	38 39 2.71	12.83			α Lyræ.
34	16.59	24.30	7.71							
35	15.72	24.45	8.73	6.94	18 31 01.15	38 39 4.50	12.53			α Lyræ.
36	15.13	24.90	9.77							
37	15.08	23.19	8.11	6.24	18 31 04.27	38 39 1.87	11.10			α Lyræ.
38	14.82	23.35	8.53							
39	14.17	23.80	9.63	+ 7.17	18 31 06.75	39 39 2.29	— 10.36			α Lyræ.
40	14.26	23.76	9.50							

COMET 1849.—III.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
April 19	B. Z., 412, 151 - -	20.8	34.3	47.8	11 41 34.30	2 45.275	+ 1 33.39	+ 6.317	s. Corr. Chron. —0 45.30
	Comet - - - - -			21.2	43 7.69	2 38.958			
	B. Z., 412, 151 - -	44.8	58.2	11.6	44 58.27	2 45.216	1 32.22	5.878	α h m. s. δ ° ′ ″
	Comet - - - - -			44.0	46 30.49	2 39.338			B. Z., 412, 151 13 54 29.45 + 23 56 09.37
	B. Z., 412, 151 - -	12.2		39.2	48 25.70	2 45.453	1 29.81	5.361	Comet — B. Z., 412, 151
	Comet - - - - -	42.0			49 55.53	2 40.092			
	B. Z., 412, 151 - -	44.2	57.3	11.5	12 5 57.67	2 50.498	1 20.63	2.121	Δ α h. m. s. Δ δ m. s. ″
	Comet - - - - -	5.7	18.2	31.0	7 18.30	2 48.377			Sid. T. 12 27 27.86 +1 8.72 —0 23.46
	(° 10) - - - - -	6.7	20.2	33.6	10 20.17	2 53.415			Δ ρ .00 — .01
									ρ — .69 + 8.52
	B. Z., 412, 151 - -	26.8	39.8	52.8	13 39.80	2 50.475	1 16.37	+ 0.414	
	Comet - - - - -	42.5	56.0	9.0	14 56.17	2 50.061			
	(° 10) - - - - -	48.2	1.2	15.7	17 1.70	2 53.346			
	B. Z., 412, 151 - -	43.8	57.5	11.1	30 57.47	2 50.317	1 7.16	— 1.850	
	Comet - - - - -	51.0	4.7	18.2	32 4.63	2 52.167			
	(° 10) - - - - -	36.4	49.7		33 49.87	3 44.231			
	B. Z., 412, 151 - -	15.2	29.2	41.8	36 28.73	2 50.122	1 3.97	2.979	
	Comet - - - - -	19.5	33.1	45.5	37 32.70	2 53.101			
	(° 10) - - - - -	7.7	21.0	34.5	39 21.07	3 44.349			
	B. Z., 142, 151 - -	20.3	33.6	47.3	48 33.73	2 50.019	0 56.50	5.432	
	Comet - - - - -	16.8	30.5	43.4	49 30.23	2 55.451			
			26.2	39.5	51 26.13	3 43.970			
	B. Z., 142, 151 - -	35.8	49.5	3.2	13 27 49.50	2 49.918	0 35.27	12.540	
	Comet - - - - -	11.0	25.1	38.2	28 24.77	2 62.458			
	B. Z., 142, 151 - -	7.4	20.8	34.2	32 20.80	2 50.089	+ 0 31.85	—12.553	
	Comet - - - - -		53.0	5.7	32 52.65	2 62.642			
April 20	(° 8) - - - - -	35.2	48.2	1.8	10 58 48.40	2 21.589	+ 1 12.25	— 1.861	s. Corr. Chron. —0 42.36
	(° 9) α - - - -	42.0			59 55.51	3 36.396			
	Comet - - - - -		1.0	13.5	11 0 0.65	2 28.450			α h. m. s. δ ° ′ ″
	° - - - - - -	53.0			0 6.51	3 36.662			(α) 13 41 12.38 + 22 46 10.67
	(° 10) - - - - -		32.0	46.0	0 32.40	2 34.701			
	α - - - - - -	59.3	13.2	26.3	5 12.93	2 21.583	1 8.14	3.501	Comet — (α) Δ α h. m. s. Δ δ m. s. ′ ″
	Comet - - - - -	7.5	21.3	34.3	6 21.07	2 25.084			Sid. T. 11 13 40.97 +1 2.71 —1 22.10
		43.7	57.1	10.5	6 57.10	2 34.560			Δ ρ .00 — .03
	α - - - - - -	18.2	31.5	44.7	10 31.47	2 21.956	1 4.33	5.010	ρ — 1.02 + 10.36
	Comet - - - - -	22.8	36.1	48.5	11 35.80	2 26.966			
		1.6	15.2	28.2	12 15.00	2 34.571			
	α - - - - - -	11.8	26.1	39.2	15 25.70	2 21.896	1 1.27	6.109	
	Comet - - - - -	14.1	26.8	40.0	16 26.97	2 28.005			
		56.2	9.0	22.5	18 9.23	2 35.949			
	α - - - - - -	26.2		53.2	21 39.70	2 22.003	0 57.50	7.417	
	Comet - - - - -	24.5	37.1	50.0	22 37.20	2 29.420			
		10.0	23.1	36.5	23 23.20	2 34.690			
	α - - - - - -	12.5	25.5	38.5	28 25.50	2 21.881	+ 0 52.80	— 8.149	
	Comet - - - - -	5.0	18.2	31.7	29 18.30	2 30.030			
		54.8	7.4	22.0	30 8.07	2 34.899			

COMET 1849.—III.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet—Star. α	Δ mic.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
ril 29	Weisse X, 859 - -		46.2	58.0	13 8 46.33	2 46.509	+ 3 16.57	—16.342
	21026, Lalande - -	5.2		29.2	10 17.20	3 39.450	1 45.64	+ 6.512
	Comet - - - - -			15.0	12 2.84	3 32.938		
	Weisse X, 859 - -	41.8		6.2	16 54.00	2 46.242	3 10.06	—20.805
	21026, Lalande - -			38.2	19 26.09	3 39.151	1 37.97	+ 2.017
	Comet - - - - -	52.5			20 4.06	3 37.134		
	Weisse X, 859 - -		4.2	15.8	25 4.33	2 46.084	3 3.67	—24.121
	21026, Lalands - -		36.2		26 36.33	3 39.252	1 31.67	1.040
	Comet - - - - -	56.0	8.0	20.0	28 8.00	3 40.292		
	Weisse X, 859 - -		39.2	51.0	36 38.60	2 47.800	2 54.13	29.930
	21026, Lalande - -	57.5		21.8	38 9.65	3 41.091	1 23.08	6.726
	Comet - - - - -	20.2	32.5	45.5	39 32.73	3 47 817		
	Weisse X, 859 - -	29.2	41.8	24.5	51 41.91	2 46.848	2 39.20	37.937
	21026, Lalande - -		12.5	32.5	53 12.61	3 40.029	+ 1 8.50	—14.843
	Comet - - - - -		21.0		54 21.11	3 54.872		

RESULTS.

Corr. Chron. — 0 m. 22.45 s.

	α h. m. s.	δ ° ′ ″
Weisse X, 859	10 46 52.84	— 0 43 8.84
21026, Lalande	10 48 25.16	— 0 49 2.31

Comet — Weisse X, 859

	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	13 30 14.30	+3 0.71	— 6 37.00
	Δρ	— —	.24
	ρ —	.90	+ 26.07

Comet — 21026, Lalande

		m. s.	′ ″
Sid. T.	13 30 14.30	+1 29.37	— 0 43.22
	Δρ	.00	— .02
	ρ —	.90	+ 26.07

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	rc. revs.	m. s.	revs.	
1849. Sept. 9	7724, B. A. C. - -	56.7	10.2		19 14 10.30	2 33.549	+ 0 23.90	+ 9.490	
	(° 10) - - - - -		25.5		14 25.60	2 25.699			
	Metis - - - - -		34.1	47.0	14 34.20	2 24.059			
	7724, B. A. C. - -	34.8	48.1	1.5	19 48.13	2 34.001	0 24.05	9.260	
	Metis - - - - -		12.5	25.2	20 12.18	2 24.741			Corr. Chron. m. s. + 2 1.88
	7724, B. A. C. - -	35.1	48.3		40 48.40	2 34.541	0 22.90	9.211	
	(° 10) - - - - -			17.2	41 3.90	2 26.392			α h. m. s. δ ° ′ ″
	Metis - - - - -	58.0	11.2		41 11.30	2 25.330			7724, B. A. C. 22 2 41.92 — 21 58 0.06
	7724, B. A. C. - -	58.3	11.4		52 11.50	2 34.415	0 22.55	9.133	Metis — 7724, B. A. C. Δ α h. m. s. Δ δ ′ ″
	(° 10) - - - - -		27.5	40.8	52 27.50	2 25.809			
	Metis - - - - -	21.0	33.8		52 34.05	2 25.282			Sid. T. 20 51 52.52 + 0 20.32 m. s. + 2 12.77
	7724, B. A. C. - -	54.2	7.2		20 00 7.30	2 34.621	0 22.45	9.122	Δ ρ .00 + .17
	Metis - - - - -	16.5		43.0	0 29.75	2 25.499			p — .10 + 5.15
	7724, B. A. C. - -	10.2	23.0		7 23.05	2 34.830	0 21.98	8.977	
	(° 10) - - - - -		39.5	51.5	7 39.03	2 26.581			
	Metis - - - - -	32.1	45.0	58.0	7 45.03	2 25.853			
	7724, B. A. C. - -	23.3	37.4		22 36.95	2 34.951	0 21.35	8.956	
	Metis - - - - -	45.4	58.0	11.5	22 58.30	2 25.995			
	7724, B. A. C. - -	59.2	11.5		33 11.85	2 35.089	0 21.25	8.968	
	(° 10) - - - - -			40.0	33 27.00	2 26.968			
	Metis - - - - -	20.1	33.1	46.1	33 33.10	2 26.121			
	7724, B. A. C. - -	29.3	43.0		45 43.10	2 35.139	0 21.00	8.717	
	(° 10) - - - - -	45.0		11.0	45 58.00	2 26.756			
	Metis - - - - -		4.0	17.0	46 4.10	2 26.422			
	7724, B. A. C. - -	49.3	2.5		21 14 2.60	2 35.123	0 19.50	8.452	
	(° 10) - - - - -		19.0	31.0	14 19.10	2 27.022			
	Metis - - - - -			35.0	15 22.10	2 26.671			
	7724, B. A. C. - -	31.2	44.3		21 44.40	2 35.192	0 19.65	8.377	
	(° 10) - - - - -		1.0		22 1.10	2 27.201			
	Metis - - - - -	50.8	4.0		22 4.05	2 26.815			
	7724, B. A. C. - -	8.0	21.5		32 21.60	2 35.140	0 18.50	8.290	
	Metis - - - - -		40.0		32 40.10	2 26.850			
	7724, B. A. C. - -	48.1	1.5		39 1.60	2 32.279	0 17.00	7.865	
	Metis - - - - -		18.5	31.5	39 18.60	2 24.414			
	7724, B. A. C. - -	33.7	47.1		42 47.20	2 32.446	0 16.90	7.915	
	Metis - - - - -		4.0	16.5	43 4.10	2 24.531			
	7724, B. A. C. - -	53.1	9.0		22 50 9.10	2 32.476	0 16.00	7.826	Night very clear and serene —— A. 10.
	Metis - - - - -		25.0	38.0	50 25.10	2 24.650			
	7724, B. A. C. - -	45.1	57.8	11.0	54 57.97	2 32.272	+ 0 16.20	+ 7.641	
	Metis - - - - -		14.0	27.3	55 14.17	2 24.631			
10	Metis - - - - -	49.1	1.7	15.1	19 46 1.97	2 37.551			
	7724, B. A. C. - -	16.0	30.1	42.5	46 29.53	2 36.062	— 0 27.56	— 1.489	
	Metis - - - - -	57.2	10.3	24.2	50 10.57	2 37.635			
	7724, B. A. C. - -	25.3	38.2	50.7	50 38.07	2 36.247	0 27.50	1.388	
	Metis - - - - -	42.8	56.7	9.7	53 56.40	2 37.922			
	7724, B. A. C. - -		24.0	37.2	54 23.80	2 36.455	— 0 27.40	— 1.467	
	(° 10) . - - - -			53.2	54 39.80	2 28.400			

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Sept. 10	Metis - - - - -	25.7	38.1	51.5	19 59 38.43	2 37.905		
	7724, B. A. C. - -	53.2	6.5	19.5	20 0 6.40	2 36.430	— 0 27.97	— 1.475
	Metis - - - - -	45.5	59.2	12.5	3 59.07	2 38.190		
	7724, B. A. C. - -	14.0	27.0	40.5	4 27.17	2 36.475	0 28.10	1.715
	Metis - - - - -	53.1	6.7	19.2	10 6.33	2 37.911		
	7724, B. A. C. - -	22.1	35.2	48.1	10 35.13	2 36.176	0 28.80	1.735
	(° 10) - - - - -		51.0	4.0	10 50.98	2 28.279		
	Metis - - - - -	53.8	7.2	21.0	14 7.33	2 38.123		
	7724, B. A. C. - -	23.0	35.7	49.1	14 35.93	2 36.422	0 28.60	1.701
	(° 10) - - - - -			4.5	14 51.31	2 28.375		
	Metis - - - - -	9.2	22.7	35.5	17 22.47	2 37.955		
	7724, B. A. C. - -	38.1	51.5	4.7	17 51.43	2 36.398	0 28.96	1.557
	(° 10) - - - - -			20.1	18 6.91	2 28.341		
	Metis - - - - -	58.5	11.5	24.5	21 11.50	2 38.275		
	7724, B. A. C. - -	26.3		53.0	21 39.65	2 36.445	0 28.15	1.830
	(° 10) - - - - -			9.0	21 55.81	2 28.220		
	Metis - - - - -	34.1	47.3	0.5	27 47.30	2 38.132		
	7724, B. A. C. - -	3.0	16.3	29.5	28 16.27	2 36.331	0 28.97	1.807
	(° 10) - - - - -			45.5	28 32.31	2 28.281		
	Metis - - - - -	42.1	55.0	9.1	31 55.40	2 38.353		
	7724, B. A. C. - -	11.0	24.2	37.5	32 24.23	2 36.540	0 28.83	1.813
	(° 10) - - - - -			53.2	32 40.01	2 28.282		
	Metis - - - - -		45.0	59.0	41 45.45	2 38.370		
	7724, B. A. C. - -	2.0	15.1	28.2	42 15.10	2 36.581	0 29.65	1.789
	Metis - - - - -	26.2	39.3	52.5	50 39.33	2 38.518		
	7724, B. A. C. - -	56.0	9.2	22.5	51 9.23	2 36.571	— 0 29.90	— 1.947
	(° 10) - - - - -		25.1	38.5	51 25.18	2 28.220		
11	Metis - - - - -	49.5	1.5	15.2	21 11 2.07	2 38.623		
	(° 11) - - - - -			40.5	11 27.31	2 40.235		
	7724, B. A. C. - -	9.2	22.3	35.5	12 22.33	2 26.829	— 1 20.26	— 11.794
	Metis - - - - -	51.7	5.1	18.5	16 5.10	2 38.800		
	(° 11) - - - - -		30.0	43.4	16 30.00	3 40.490		
	7724, B. A. C. - -	11.3	25.1	38.3	17 24.90	2 26.645	1 19.80	12.155
	Metis - - - - -	8.0	21.0	34.1	23 21.07	2 38.790		
	(° 11) - - - - -			59.1	23 45.91	2 40.609		
	7724, B. A. C. - -	28.3	41.5	54.6	21 24 41.47	2 26.968	1 20.40	11.822
	Metis - - - - -	15.1	28.5	41.3	22 44 28.30	2 44.368		
	(° 11) - - - - -		57.0	9.5	44 56.65	3 45.430		
	7724, B. A. C. - -	38.1	51.0	4.2	45 51.10	2 31 876	1 22.80	12.492
	Metis - - - - -	29.1	42.1	55.2	53 42.13	2 39.105		
	(° 11) - - - - -		10.5	24.0	54 10.73	3 40.242		
	7724, B. A. C. - -	52.0	5.4	19.1	55 5.50	2 26.688	1 23.37	12.417
	Metis - - - - -	12.5	25.8	39.2	58 25 83	2 39.240		
	(° 11) - - - - -			7.2	58 54.01	3 40.200		
	7724, B. A. C. - -	36.5	49.5	2.4	59 49.47	2 26.501	1 23.64	12.739
	Metis - - - - -		52.5	6.0	23 3 52.82	2 39.229		
	(° 11) - - - - -		21.5	35.0	4 20.82	3 40.131		
	7724, B. A. C. - -	3.7	16.5	29.5	5 16.57	2 26.430	— 1 23.75	— 12.799

RESULTS.

Corr. Chron. m. s. + 2 3.10

	α h. m. s.	δ ° ′ ″
7724, B. A. C.	22 2 41.92	— 21 58 0.14

Metis—7724, B. A. C.

		Δ α m. s.	Δ δ ′ ″
Sid. T.	20 16 33.99	—0 28.49	—0 25.67
	Δ ρ	.00	— .03
	p	— .15	+ 5.04

Night clear and still.—A. 8.

Corr. Chron. m. s. + 2 5.33

	α h. m. s.	δ ° ′ ″
7724, B. A. C.	22 2 41.93	— 21 58 0.22

Metis—7724, B. A. C.

		Δ α m. s.	Δ δ ′ ″
Sid. T.	22 15 4.95	—1 22.00	—3 9.33
	Δ ρ	.00	— .22
	p	+ .02	+ 5.19

Night clear and still.—A. 10.

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α.	Δ mic.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Sept. 12	Metis - - - - -	59.7	13.1	26.2	21 18 13.00	2 59.470		
	7724, B. A. C. - -	8.1	21.3	34.5	20 21.30	2 38.630	— 2 8.30	—20.840
	Metis - - - - -	13.5	26.8	39.8	24 26.70	2 59.551		
	7724, B. A. C. - -	22.1	35.3	48.7	26 35.37	2 38.691	2 8.67	20.860
	Metis - - - - -	50.4	3.7	17.0	22 13 3.70	3 29.711		
	7724, B. A. C. - -	0.8	13.5	27.1	15 13.80	2 38.178	2 10.10	21.446
	Metis - - - - -	54.3	8.2	21.5	22 8.00	2 59.554		
	7724, B. A. C. - -	5.2	19.0	32.2	24 18.80	2 38.241	— 2 10.80	—21.313
Sept. 13	43106, Lalande - -	2.0	15.1	28.5	20 42 15.20	3 51.151	+ 0 17.73	+54.303
	Metis - - - - -			46.2	42 32.93	2 26.761		
	7724, B. A. C. - -	13.4	27.2	39.5	45 26.70	1 28.251	— 2 53.77	—28.661
	43106, Lalande - -	38.2	51.2	4.0	21 2 51.13	3 42.940	+ 0 17.20	+54.013
	Metis - - - - -		8.1	21.5	3 8.33	1 48.991		
	7724, B. A. C. - -	49.5	3.0	16.0	6 2.83	1 19.861	— 2 54.50	—29.130
	43106, Lalande - -	0.8	14.1		14 14.08	3 43.079	+ 0 16.65	+54.151
	Metis - - - - -		31.0	43.7	14 30.73	1 48.992		
	7724, B. A. C. - -	12.5	25.7	39.0	17 25.73	1 19.810	— 2 55.00	—29.182
	43106, Lalande - -	45.0	58.0		22 57 58.02	3 42.116	+ 0 13.75	+53.539
	Metis - - - - -		11.7	24.2	58 11.77	1 48.641		
	7724, B. A. C. - -	57.3	9.0	22.7	23 1 9.67	1 18.742	— 2 57.90	—29.899
Sept. 14	Metis - - - - -	16.1		42.5	19 14 29.30	2 34.260		
	43106, Lalande - -		53.5	7.1	14 53.68	3 51.445	— 0 24.38	+47.098
	7724, B A. C. - -	52.7	6.4	18.7	18 5.93	1 28.301	3 36.63	—36.110
	Metis - - - - -	20.8	33.8	47.5	30 34.03	2 32.358		
	43106, Lalande - -		0.0	13.5	31 0.13	3 49.690	0 26.10	+47.245
	7724, B. A. C. - -	58.7	12.0	25.6	34 12.10	1 26.390	3 38.07	—36.119
	Metis - - - - -	58.1	11.5	24.8	44 11.47	2 27.485		
	43106, Lalande - -		37.5	50.7	44 37.96	3 44.941	0 26.49	+47.369
	7724, B. A. C. - -	35.5	49.1	2.5	47 49.03	1 21.950	3 37.56	—35.686
	Metis - - - - -	21.1	35.1		57 34.67	1 59.313		
	43106, Lalande - -		1.0	13.4	58 0.62	3 46.208	0 25.95	+46.959
	7724, B. A. C. - -	59.5	12.7	25.8	20 01 12.67	1 23.163	3 38.00	—36.301
	Metis - - - - -	49.2	2.0		9 2.22	1 59.453		
	43106, Lalande - -			42.1	9 28.83	3 46.529	0 26.61	+47.140
	7724, B. A. C. - -	27.5	40.8	54.0	12 40.77	1 23.359	3 38.55	36.094
	Metis - - - - -	58.7	12.1		18 12.15	1 39.550		
	43106, Lalande - -		39.0	52.0	18 38.75	3 46.467	0 26.60	+46.981
	7724, B. A. C. - -	37.2	50.7	4.2	21 50.70	1 23.520	3 38.55	—36.030
	Metis - - - - -		0.0		27 0.00	1 59.759		
	43106, Lalande - -			40.5	27 27.23	3 46.630	— 0 27.23	+46.935
	7724, B. A. C. - -	26.5	39.5	52.5	30 39.50	1 23.296	3 39.50	—36.463
Sept. 15	Metis - - - - -	45.7	58.7	12.1	21 17 58.83	2 37.481		
	43106, Lalande - -			25.2	19 11.93	3 46.931	— 1 13.10	+39.363
	Metis - - - - -	44.2	58.0	11.0	24 57.73	2 37.673		
	43106, Lalande - -	58 1	11.0	24.1	26 11.07	3 47.613	1 13.34	39.853
	Metis - - - - -		4.1	17.4	22 15 4.05	2 35.172		
	43106, Lalande - -		19.1	32.5	16 19.10	3 45.156	1 15.05	39.897
	Metis - - - - -	9.7	23.1	35.9	21 22.90	2 35.409		
	43106, Lalande - -	25.0	38.1	51.7	22 38.27	3 45.198	— 1 15.37	+39.702
	7724, B. A. C. - -	36.5	49.5	2.5	25 49.50	1 22.401		

RESULTS.

Corr. Chron. + 2 m. 7.70 s.

	α h. m. s.	δ ° ′ ″
7724, B. A. C.	22 2 41.93	— 21 58 0.30

Metis — 7724, B. A. C.

	Δ α h. m. s.	m. s.	Δ δ ′ ″
Sid. T.	21 51 35.55	—2 9.47	— 5 24.57
	Δρ	.00	— 0.38
	p —	.01	+ 5.19

Damp, with floating clouds. A. 5.

Corr. Chron. + 2 m. 9.98 s.

	α h. m. s.	δ ° ′ ″
43106, Lalande	21 59 30.12	—22 19 18.58
7724, B. A. C.	22 2 41.93	—21 58 0.37

Metis — 43106, Lalande.

	Δ α h. m. s.	s.	Δ δ ′ ″
Sid. T.	21 31 45.92	+0 16.33	+13 50.05
	Δρ	.00	0.99
	p —	.04	+ 5.17

Metis — 7724, B. A. C.

	h. m. s.	m. s.	′ ″
Sid. T.	21 31 45.92	—2 55.29	— 7 29.12
	Δρ	.00	— 0.53
	p —	.04	+ 5.17

Damp and misty. A. 6.

Corr. Chron. — 0 m. 46.45 s.

	α h. m. s.	δ ° ′ ″
43106, Lalande	21 59 30.12	—22 19 18.66
7724, B. A. C.	22 2 41.94	—21 58 0.44

Metis — 43106, Lalande.

	Δ α h. m. s.	s.	Δ δ ′ ″
Sid. T.	19 53 39.81	—0 26.19	+12 04.04
	Δρ	.04	1.19
	p —	.17	+ 4.92

Metis — 7724, B. A. C.

	h. m. s.	m. s.	′ ″
Sid. T.	19 53 39.81	—3 38.12	— 9 15.15
	Δρ +	.03	— 0.88
	p —	.17	+ 4.89

Clear, with light clouds. A. 8.

Corr. Chron. — 0 m. 44.87 s.

	α h. m. s.	δ ° ′ ″
43106, Lalande	21 59 30.11	—22 19 18.74

Metis — 43106, Lalande.

	Δ α h. m. s.	m. s.	Δ δ ′ ″
Sid. T.	21 49 6.01	—1 14.21	+10 10.30
	Δρ	.00	0.72
	p —	.00	+ 5.14

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Sept. 16	Metis	42.8	56.1	9.2	21 21 56.03	1 37.618		
	43106, Lalande . .	38.1	51.5	5.0	23 51.53	2 41.873	— 1 55.50	+34.406
	Metis	53.4	6.5	20.1	33 6.67	1 37.571		
	43106, Lalande . .	49.2	2.3	16.0	35 2.50	2 41.822	1 55.83	34.402
	Metis	36.2	49.3	2.5	41 49.33	1 37.450		
	43106, Lalande . .	33.1	46.5	59.7	43 46.43	2 41.841	— 1 57.10	+34.542
Sept. 18	Metis		16.1		21 47 16.16	1 44.371		
	43106, Lalande . .	21.5	34.5	48.2	50 34.73	2 39.912	— 3 18.57	+25.692
	Metis	36.1			22 1 49.21	1 44.479		
	43106, Lalande . .	55.2	8.1	21.3	5 8.20	2 39.912	3 18.99	25.584
	Metis			49.2	13 35.98	1 44.719		
	43106, Lalande . .	43.0	55.7	9.0	16 55.90	2 39.912	3 19.92	25.344
	Metis	59.5	13.0	26.1	24 12.87	1 44.307		
	43106, Lalande . .	18.5	32.1	44.8	27 31.80	2 39.912	3 18.93	25.756
	Metis		24.1	37.2	40 24.10	1 44.258		
	43106, Lalande . .	30.8	43.6	57.3	43 43.90	2 39.683	— 3 19.80	+25.576
Oct. 13	42700, Lalande . .	22 1	34.9	47.9	21 8 34.97	3 41.737	+ 1 42.35	+67.120
	Metis		17.5	30.0	10 17.32	1 34.681		
	42700, Lalande . .	11.3	24.7	37.9	27 24.63	3 41.852	+ 1 41.87	67.045
	Metis	53.5		19.5	29 6.50	1 34.871		
	7649, B. A. C. . .	16.0	29.7	43.2	30 29.63	3 53.311	— 1 23.13	78.504
	42700, Lalande . .	30.9	44.1	57.0	44 44.00	3 41.646	+ 1 42.35	67.080
	Metis	13.2		39.5	46 26.35	1 34.630		
	7649, B. A. C. . .	36.3	49.1	2.2	47 49.20	3 53.481	— 1 22.85	78.915
	42700, Lalande . .	2.5	16.1	28.9	56 15.83	3 41.619	+ 1 42.42	67.274
	Metis	45.1		11.4	57 58.25	1 34.409		
	7649, B. A. C. . .	8.2		34.7	59 21.45	3 53.378	— 1 23.20	79.033
	42700, Lalande . .	39.7	52.8	6.0	22 6 52.83	3 41.797	+ 1 41.77	67.578
	Metis	21.5		47.7	8 34.60	1 34.283		
	7649, B. A. C. . .	44.9	57.7	10.4	9 57.67	3 53.334	— 1 23.07	+79.115
Oct. 14	(5)	33.4		59.5	21 22 46.45	2 41.572	+ 0 51.22	— 5.310
	Metis	24.2	38.0	50.8	23 37.67	2 46.882		
	(6)	16.1	29.7	43.3	24 29.70	2 35.886	— 0 52.03	10.996
	(5)	25.5	38.5		31 38.87	2 41.587	+ 0 50.70	5.303
	Metis	16.2	29.2	43.3	32 29.57	2 46.890		
	(6)		21.7	34.2	33 21.27	2 35.973	— 0.51.70	10.917
	(5)	1.3	14.5	28.0	38 14.60	2 41.786	+ 0 51.50	5.264
	Metis		6.5	19.0	39 6.10	2 47.050		
	(6)		58.2	11.2	39 58.05	2 36.043	— 0 51.95	11.007
	(5)	27.5	40.7	53.0	47 40.40	2 42.148	+ 0 51.27	4.863
	Metis	18.5	31.7	44.8	48 31.67	2 47.011		
	(6)	10.3	23.5	37.1	49 23.63	2 36.251	— 0 51.96	—10.760
Oct. 15	(5)	49.2		14.5	21 51 1.85	3 39.429	+ 0 59.81	+11.046
	Metis			15.0	52 1.66	3 28.383		
	(6)		45.3	58.1	52 45.39	3 33.471	— 0 43.73	+ 5.088

RESULTS.

Sept. 16

Corr. Chron. — 0 m. s. 41.34

	α h. m. s.	δ ° ′ ″
43106, Lalande	21 59 30.10	— 22 19 18.82

Metis — 43106, Lalande.

	Δα h. m. s.	Δδ ′ ″
Sid. T.	21 31 36.00 — 1 56.14	+ 8 49.53
	Δρ .00	0.63
	p — .04	+ 5.14

Clear and warm.—A. 6.

Sept. 18

Corr. Chron. — 0 m. s. 39.59

	α h. m. s.	δ ° ′ ″
43106, Lalande	21 59 30.08	— 22 19 19.00

Metis — 43106, Lalande

	Δα h. m. s.	Δδ ′ ″
Sid. T.	22 12 48.07 — 3 19.24	+ 6 33.36
	Δρ .99	0.46
	p + .02	+ 5.08

A—7.

Oct. 13

Corr. Chron. + 0 m. s. 13.03

	α h. m. s.	δ ° ′ ″
42700, Lalande	21 47 14.11	— 21 50 48.05
7649, B. A. C.	21 50 20.83	— 21 53 46.47

Metis — 42700, Lalande

	Δα h. m. s.	Δδ ′ ″
Sid. T.	21 42 41.63 + 1 42.15	+ 17 13.22
	Δρ .00	1.18
	p — .01	+ 4.47

Metis — 7649. B. A. C.

	h. m. s.	m. s.	′ ″
Sid. T.	21 50 44.45	— 1 23.06	+ 20 12.65
	Δρ	.00	1.38
	p	.00	+ 4.48

Vapors — A. 6.

Oct. 14

Corr. Chron. + 0 m. s. 14.17

	α h. m. s.	δ ° ′ ″
(5)	21 48 11.38	— 21 28 28.57
(6)	21 49 55.94	— 21 26 57.07

Metis — (5)

	Δα h. m. s.	Δδ ′ ″
Sid. T.	21 36 10.42 + 0 51.17	— 1 19.70
	Δρ .00	— 0.09
	p — .02	+ 4.42

Metis — (6)

	h. m. s.	m. s.	′ ″
Sid. T.	21 36 10.42	— 0 51.91	— 2 47.84
	Δρ	.00	— 0.19
	p	— .02	+ 4.42

Vapors — A. 8.

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s	h. m. s.	w. revs.	m. s.	revs.
1849. Oct. 15	(5)	13.5		39.0	21 59 26.25	3 39.291	+ 1 00.00	+11.099
	Metis		26.2	39.5	22 0 26.25	3 28.192		
	(6)	56.2	9.7	22.3	1 9.40	3 33.347	— 0 43.15	5.155
	(5)	34.5		0.2	7 47.35	3 39.381	+ 1 00.02	11.220
	Metis	34.1	47.5	0.5	8 47.37	3 28.161		
	(6)	17.6	30.5	44.2	9 30.77	3 33.468	— 0 43.40	5.307
	(5)	13.2		39.2	16 26.20	3 39.442	+ 1 00.67	11.402
	Metis	13.4	26.7	40.5	17 26.87	3 28.040		
	(6)	57.2	9.5	23.2	18 9.97	3 33.510	— 0 43.10	+ 5.470
24	(7)		11.0	24.2	22 33 10.95	2 47.219	+ 0 50.05	+ 2.959
	Metis	48.0		14.0	34 1.00	2 44.260		
	(7)		17.2	29.8	23 3 17.20	2 48.690	0 49.10	3.281
	Metis		6.0	19.2	4 6.30	2 45.409		
	(7)	54.2		20.5	0 41 7.35	2 46.610	0 51.10	4.479
	Metis		58.5	11.5	41 58.45	2 42.131		
	(7)	56.5	10.1	23.0	58 9.87	2 45.581	0 51.30	5.363
	Metis	48.0	1.0	14.5	59 1.17	2 40.218		
	(7)		8.5	21.0	1 9 8.45	2 45.957	+ 0 50.55	+ 6.218
	Metis		59.0		9 59.00	2 39.739		
25	(7)	34.0	47.5		20 51 47.32	3 42.746	+ 1 13.05	+22.679
	Metis	47.1	0.5	13.5	53 0.37	2 49.980		
	(7)	46.0	58.5		21 6 58.87	3 42.721	1 13.40	22.912
	Metis	59.3	12.0	25.5	8 12.27	2 49.722		
	(7)	33.0	46.5		18 46.65	3 42.878	+ 1 13.80	+23.101
	Metis		0.3	13.0	20 0.45	2 49.690		
	(8)		33.0	46.2	20 33.15	1 53 410	— 0 32.70	—26.431
	(7)	1.5	14.0		32 14.15	3 42.731	+ 1 14.02	+23.341
	Metis	15.2	28.3	41.0	33 28.17	2 49.303		
	(8)			14.0	34 0.67	1 53.521	— 0 32.50	—25.933
	(7)	30.1	43.0		41 43.15	3 42.631	+ 1 14.18	+23.264
	Metis	43.9	57.1	11.0	42 57.33	2 49.280		
	(8)	17.0	30.1	43.0	43 30.03	1 53.486	— 0 32.70	—25.945
	(7)	43.2	56.1		49 56.25	3 42.733	+ 1 13.68	+23.707
	Metis	57.3	9.5	23.0	51 9.93	2 48.939		
	(8)		43.0	56.1	51 43.23	1 53.343	— 0 33.30	—25.747
	(7)		1.0		58 1.15	3 42.422	+ 1 14.72	+23.525
	Metis	2.8	15.7	29.1	59 15.87	2 48.810		
	(8)		48.0	1.2	59 48.07	1 53.331	— 0 32.20	—25.630
27	42813, Lalande	16.5	29.5	42.0	21 28 29.33	2 34.537	+ 2 37.54	—25.631
	(8)		43.2	57.0	30 43.67	3 49.310	0 23.20	+19.055
	Metis	54.0	6.5	20.1	31 6.87	3 30.255		
	42813, Lalande	24.7	38.1	51.0	22 57 37.93	1 40.600	2 38.57	—24.357
	(8)	39.5		5.0	22 59 52.25	2 54.253	+ 0 24.25	+19.447
	Metis	4.0		29.0	23 0 16.50	2 34.806		

RESULTS.

Corr. Chron. + 0 m. 16.24 s.

	α h. m. s.	δ ° ′ ″
(5)	21 48 11.36	—21 28 28.68
(6)	21 49 55.92	—21 26 57.17

Metis—(5)	Δ α m. s.	Δ δ ′ ″
Sid. T. 22 4 56.78	+1 0.12	+2 52.04
Δ ρ	.00	0.19
ρ	+ .02	+ 4.42

Metis—(6)	m. s.	′ ″
Sid. T. 22 4 56.78	—0 43.34	+1 20.77
Δ ρ	.00	0.09
Misty—A. 6 ρ	+ .02	+ 4.42

Corr. Chron. + 0 m. 30.93 s.

	α h. m. s.	δ ° ′ ″
(7)	21 50 58.00	—20 43 9.11

Metis—(7)	Δ α m. s.	Δ δ ′ ″
Sid. T. 0 6 20.11	+0 50.42	+1 8.55
Δ ρ	.00	0.10
ρ	+ .15	+ 3.94

High wind and noise—A. 5.

Corr. Chron. + 0 m. 32.78 s.

	α h. m. s.	δ ° ′ ″
(7)	21 50 57.98	—20 43 9.20
(8)	21 52 44.80	—20 30 26.81

Metis—(7)	Δ α m. s.	Δ δ ′ ″
Sid. T. 21 30 17.69	+1 13.84	+5 56.90
Δ ρ	.00	0.38
ρ	— .02	+ 4.13

Metis—(8)	m. s.	′ ″
Sid. T. 21 41 57.13	—0 32.68	—6 38.69
Δ ρ	.00	+ 0.43
ρ	— .01	+ 4.13

Hazy ; moonlight—A. 4.

Corr. Chron. + 0 m. 37.14 s.

	α h. m. s.	δ ° ′ ″
42813, Lalande.	21 50 30.46	—20 19 17.19
(8)	21 52 44.76	—20 30 26.99

Metis—42813, Lalande.	Δ α m. s.	Δ δ ′ ″
Sid. T. 22 55 18.05	+2 39.32	—6 14.57
Δ ρ	— 0.01	— 0.42
ρ	+ .07	+ 4.04

(Continued.)

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w.	rev.	m. s.	rev.	
t. 27	42813, Lalande . .	57.5	10.2	22.9	23 9 10.20	1	40.380	+ 2 40.63	— 23.996	Metis — (8)
	(8)	12.1	25.0	37.8	11 24.63	2	54.154	0 26.20	+ 19.929	Δ α h. m. s. m. s. Δ δ ′ ″
	Metis	39.0	50.4	3.1	11 50.83	2	34.225			Sid. T. 22 48 57.42 + 0 24.97 + 5 1.49
	42813, Lalande . .	10.7	24.1	37.0	17 23.93	1	40.328	2 39.50	— 23.992	Δ ρ .00 + 0.33
	Metis	50.0	3.2	17.1	20 3.43	2	34.169			p + .06 + 4.05
	42813, Lalande . .	13.1	26.5	40.1	27 26.57	1	40.160	2 40.36	— 23.866	
	(8)	28.1	41.0	53.0	29 40.70	2	53.899	+ 0 26.23	+ 20.024	
	Metis	54.1	7.3	19.5	30 6.93	2	33.875			Warm and hazy—A. 5.
v. 2	Metis			3.0	21 30 49.80	2	35.640			
	(9)	39.5	52.0	6.0	30 52.50	2	32.299	— 0 2.70	— 3.341	
	Metis		55.0	8.0	44 55.00	2	35.290			
	(9)		56.5	9.5	44 56.50	2	32.487	0 1.50	2.803	
	Metis	16.0	29.0	42.0	56 29.00	2	34.878			m. s.
	(9)	17.5	31.5	44.0	56 31.00	2	32.271	— 0 2.00	2.647	Corr. Chron. + 0 47.17
	(9)	47.0	0.0	13.0	22 58 00.00	2	35.931	+ 0 1.20	1.384	α h. m. s. δ ° ′ ″
	Metis	48.1	1.3	14.2	58 1.20	2	37.315			(9) 21 56 36.06 — 19 48 3.28
	(9)	46.0	59.0		23 0 59.00	2	35.990	0 1.20	1.282	43040, Lalande 21 57 31.11 — 19 23 44.79
	Metis	47.3	0.1		1 0.20	2	37.272			Metis—(9)
	(9)	47.0	0.0	13.0	3 0.00	2	35.960	0 1.13	1.353	Δ α h. m. s. m. s. Δ δ ′ ″
	Metis	48.1	1.2	14.1	3 1.13	2	37.313			Sid. T. 23 0 52.05 + 0 0.92 — 0 22.07
	(9)	55.0	8.0		7 8.00	2	35.691	0 1.15	1.519	Δ ρ .00 — 0.03
	Metis	56.1	9.2		7 9.15	2	37.210			p + .07 + 3.86
	(9)	53.0	6.1	19.0	9 6.03	2	35.701	0 1.27	1.109	Metis—43040, Lalande.
	Metis	54.2	7.4	20.3	9 7.30	2	36.810			h. m. s. m. s. ′ ″
	(9)	37.1		3.0	11 50.05	2	35.658	0 1.55	1.331	Sid. T. 23 43 58.32 — 0 54.25 — 24 28.03
	Metis	38.5		4.7	11 51.60	2	36.989			Δ ρ — 0.05 — 1.80
	(9)	39.7		5.3	13 52.50	2	35.805	0 1.60	1.043	p + .11 + 3.78
	Metis	41.2		7.0	13 54.10	2	36.848			
	(9)	46.2	59.0	12.0	15 59.07	2	35.723	0 1.46	0.928	
	Metis	47.7	0.3	13.6	16 0.53	2	36.651			
	(9)	40.2	53.0	6.0	18 53.07	2	35.722	0 1.76	1.011	
	Metis	41.8	54.8	7.9	18 54.83	2	36.733			
	(9)	37.0		3.0	20 50.00	2	35.660	0 1.60	1.097	
	Metis	38.5		4.7	20 51.60	2	36.757			
	(9)	11.0	24.7	37.0	34 24.00	3	53.519	+ 0 2.17	0.822	
	Metis	13.0	26.3	39.2	34 26.17	3	54.341			
	43040, Lalande . .		21.0	34.0	35 21.02	1	18.761	— 0 54.40	95.644	
	(9)	34.1	48.3		42 48.30	3	53.260	+ 0 2.20	0.718	
	Metis	36.3	50.5		42 50.50	3	53.978			
	(9)	41.0	53.3		51 53.53	3	53.242	+ 0 2.60	0.587	
	Metis	43.2	56.2		51 56.13	3	53.829			
	43040, Lalande . .	37.5	50.1	3.1	52 50.23	1	18.527	— 0 54.10	— 95.366	Misty—A. 6.
3	Metis			29.0	23 3 15.65	3	44.762			
	43040, Lalande . .			45.0	3 31.65	1	84.380	— 0 16.00	— 70.446	

(Continued.)

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Nov. 3	Metis		20.2	32.8	23 10 20.52	3 44.329			Corr. Chron. m. s. + 0 49.06
	43040, Lalande . .			49.7	10 36.35	1 33.999	— 0 15.83	—70.394	α h. m. s. δ ° ′ ″
	Metis	59.1	12.1		20 12.41	3 44.013			43040, Lalande. 21 57 31.11 — 19 23 44.89
	43040, Lalande . .		28.0	41.0	20 28.31	1 33.906	0 15.90	70.171	Metis—43040, Lalande. Δ α h. m. s. m. s. Δ δ ′ ″
	Metis	26.7	39.1	52.7	27 39.50	3 44.170			Sid. T. 23 16 11.08 — 0 15.77 — 18 0.90
	43040, Lalande . .			8.2	27 54.85	1 33.967	— 0 15.35	70.267	Δ ρ — .02 1.22
									Cloudy—A. 3. p + .08 — 3.81
4	43040, Lalande . .	17.50	30.7		21 28 30.70	1 33.744	+ 0 22.80	—46.145	
	Metis		53.5		28 53.50	2 49.738			
	43040, Lalande . .	32.10	45.1	58.1	33 45.10	1 33.750	0 21.95	45.996	Corr. Chron. m. s. + 0 50.90
	Metis		7.0	20.1	34 7.05	2 49.595			
	43040, Lalande . .	59.5	12.8		41 12.80	1 33.813	0 22.40	45.911	α h. m. s. δ ° ′ ″
	Metis		35.2	47.0	41 35.20	2 49.573			43040, Lalande. 21 57 31.10 — 19 23 44.97
	43040, Lalande . .	48.3	1.2	14.1	45 1.20	1 33.783	0 22.10	45.910	Metis—43040, Lalande. Δ α h. m. s. m. s. Δ δ ′ ″
	Metis			36.2	45 23.30	2 49.542			Sid. T. 22 0 17.52 + 0 22.70 — 11 40.35
	43040, Lalande . .	22.3	35.1		49 35.10	1 33.710	0 23.20	45.781	Δ ρ .00 — 0.72
	Metis		58.3	10.8	49 58.30	2 49.340			p .00 + 3.85
	43040, Lalande . .	40.7	54.7		53 54.70	1 33.814	0 22.40	45.728	
	Metis		17.1	29.9	54 17.10	2 49.391			
	43040, Lalande . .	46.7	0.1		59 0.10	1 34.162	0 22.00	45.534	
	Metis	9.0		35.2	59 22.10	2 49.545			
	43040, Lalande . .	14.2	27.1		22 3 27.10	1 34.090	0 23.00	45.560	
	Metis		50.1	3.3	3 50.10	2 49.499			
	43040, Lalande . .	34.2	47.1		7 47.10	1 34.211	0 23.20	45.270	
	Metis		10.3	23.5	8 10.30	2 49.330			
	43040, Lalande . .	19.7	33.2		13 32.67	1 34.121	0 23.00	45.393	
	Metis	43.2	55.7	8.1	13 55.67	2 49.363			
	43040, Lalande . .	8.1	21.1		18 21.10	1 34.121	0 22.60	45.131	
	Metis			57.1	18 43.70	2 49.101			
	43040, Lalande . .	15.2	28.1		24 28.10	1 34.109	0 23.00	45.115	
	Metis	38.0		4.2	24 51.10	2 49.073			
	43040, Lalande . .	22.2	35.2		29 35.20	1 34.068	0 23.50	44.835	Light clouds—A. 6.
	Metis	45.7		11.7	29 58.70	2 48.752			
5	43040, Lalande . .	13.2	26.1	39.0	22 56 26.10	1 41.072	1 6.30	17.677	Corr. Chron. m. s. + 0 52.87
	Metis	19.2	32.5	45.5	57 32.40	1 58.749			
	43040, Lalande . .	39.5	52.3	5.2	23 10 52.33	1 40.769	1 6.90	17.641	α h. m. s. δ ° ′ ″
	Metis	46.2	59.1	12.4	11 59.23	2 28.259			43040, Lalande. 21 57 31.09 — 19 23 45.06
	43040, Lalande . .	18.3	31.0	44.0	17 31.10	1 40.711	1 7.07	17.522	Metis—43040, Lalande. Δ α h. m. s. m. s Δ δ ′ ″
	Metis	25.0	38.5	51.0	18 38.17	1 58.233			Sid. T. 23 28 9.54 + 1 7.40 — 4 25.29
	43040, Lalande . .	40.3	53.0	6.2	27 53.17	1 40.729	1 7.90	17.223	Δ ρ .00 — .30
	Metis	48.0	1.2	14.0	29 1.07	1 57.952			p + .09 + 3.74
	43040, Lalande . .	36.2	49.2		35 49.32	1 40.741	1 7.95	16.999	
	Metis	44.1	57.1	10.5	36 57.27	1 57.740			
	43040, Lalande . .	49.3	2.0		43 2.00	1 40.526	1 7.50	16.970	
	Metis	57.0			44 9.50	1 57.496			Misty and warm, with clouds—A. 6.
	43040, Lalande . .	18.2	30.7	43.8	51 30.90	1 40.485	+ 1 8.17	—16.785	
	Metis	26.0	39.2	52.0	52 39.07	1 57.270			

METIS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
r. 6	43040, Lalande - -	13.2	26.1	39.0	22 9 26.10	2	51.699	+ 1 48.97	+ 8.346
	Metis - - - - -	2.0	15.5	27.7	11 15.07	2	43.353		
	7711, B. A. C. - -	25.3	38.0	51.0	12 38.10	1	48.033	— 1 23.03	—25.471
	43040, Lalande - -	48.3	0.7	14.1	22 1.03	2	51.422	+ 1 48.57	+ 8.391
	Metis - - - - -	36.2		3.0	23 49.60	2	43.031		
	7711, B. A. C. - -	0.3	13.2	26.7	25 13.40	1	47.959	— 1 23.80	—25.223
	43040, Lalande - -	5.2	18.1	31.0	41 18.10	2	51.201	+ 1 49.00	+ 8.857
	Metis - - - - -		7.1	20.0	43 7.10	2	42.344		
	7711, B. A. C. - -	16.2	29.4	42.3	44 29.30	1	47.776	— 1 22.20	—24.719
	43040, Lalande - -	44.1	57.0	9.8	52 56.97	2	51.192	+ 1 50.00	+ 9.013
	Metis - - - - -		47.1	59.7	54 46.97	2	42.179		
	7711, B. A. C. - -	56.1	9.3	21.7	56 9.03	1	47.653	— 1 22.06	—24.677
	43040, Lalande - -	54.0	7.2	19.7	23 12 6.97	2	51.012	+ 1 50.30	+ 9.334
	Metis - - - - -	44.2	57.2	10.4	13 57.27	2	41.678		
	7711, B. A. C. - -	6.1	19.2	32.1	15 19.13	1	47.591	— 1 21.86	—24.238
r. 7	43040, Lalande - -	21.8	35.2	48.3	22 25 35.10	1	52.018	+ 2 34.00	—23.895
	Metis - - - - -	56.2	9.1	22.0	28 9.10	2	45.862		
	7711, B. A. C. - -	34.3	46.1		28 46.65	2	48.410	— 0 37.55	+ 2.548
	43040, Lalande - -	13.3	26.2	39.5	37 26.33	1	51.458	+ 2 34.77	—23.843
	Metis - - - - -	48.2	1.0	14.1	40 1.10	2	45.150		
	7711, B. A. C. - -	25.1	39.2	51.3	40 38.53	2	47.823	— 0 37.43	+ 2.673
	Metis - - - - -		41.7	54.6	45 41.63	2	44.655		
	7711, B. A. C. - -	6.1	19.2	32.1	46 19.13	2	47.637	0 37.50	2.982
	Metis - - - - -	25.8	38.7	51.3	50 38.60	2	44.543		
	7711, B. A. C. - -	2.7	15.9	29.3	51 15.97	2	47.569	0 37.37	3.026
	Metis - - - - -	39.7	52.5	5.7	53 52.63	2	44.403		
	7711, B. A. C. - -	16.2	29.4	42.7	54 29.43	2	47.582	0 36.80	3.179
	Metis - - - - -	30.7	43.9	56.3	56 43.63	2	44.380		
	7711, B. A. C. - -	7.5	20.3	33.0	57 20.27	2	47.513	0 36.64	3.133
	Metis - - - - -	18.2	31.3	44.0	23 13 31.17	2	43.890		
	7711, B. A. C. - -	55.0	7.1	21.0	14 7.76	2	47.591	0 36.53	3.701
	Metis - - - - -	29.5	42.3	55.0	19 42.27	2	43.750		
	7711, B. A. C. - -	5.1	18.3	31.5	20 18 30	2	47.448	— 0 36.03	+ 3.698
r. 10	7711, B. A. C. - -		9.7		22 11 9.70	3	63.742	+ 1 43.20	+87.188
	Metis - - - - -			6.0	12 52.90	1	36.618		
	7711, B. A. C. - -	31.0		58.2	20 44.60	3	57.885	1 44.43	87.209
	Metis - - - - -	16.0	29.0	42.1	22 29.03	1	30.740		
	7711, B. A. C. - -	39.3	52.5	5.7	29 52.50	3	57.923	1 44.60	87.534
	Metis - - - - -	24.2		50.0	31 37.10	1	30.453		
	7711, B. A. C. - -	12.3	25.1	38.2	38 25.20	3	57.838	1 44.85	87.584
	Metis - - - - -	57.1		23.0	40 10.05	1	30.318		
	7711, B. A. C. - -	7.1	20.3	32.9	46 20.10	3	57.938	+ 1 45.73	+87.644
	Metis - - - - -	52.5	6.0	19.0	48 5.83	1	30.358		

RESULTS.

Corr. Chron. +0 s. 54.80

	α	δ
	h. m. s.	° ′ ″
43040, Lalande	21 57 31.07	—19 23 45.12
7711, B. A. C.	22 0 43.93	—19 15 8.70

Metis — 43040, Lalande.

		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	22 42 18.00	+ 1 49.37	+ 2 15.08
		Δ ρ .00	0.14
		p + .05	+ 3.78

Metis — 7711, B. A. C.

	h. m. s.	m. s.	′ ″
Sid. T.	22 42 18.00	— 1 22.58	— 6 22.21
		.00	— 0.39
		+ .05	+ 3.78

Misty. A. 6.

Corr. Chron. +0 m. s. 56.81

	α	δ
	h. m. s.	° ′ ″
7711, B. A. C.	22 0 43.91	—19 15 8.73

Metis — 7711, B. A. C.

		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	22 54 29.33	— 0 36.98	+ 0 47.91
		Δ ρ .00	0.05
		p + .06	+ 3.74

Misty. A. 6.

Corr. Chron. +1 m. s. 3.72

	α	δ
	h. m. s.	° ′ ″
7711, B. A. C.	22 0 43.86	— 19 15 8.61

Metis — 7711, B. A. C.

		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	22 32 6.70	+ 1 44.56	+22 23.95
		Δ ρ .01	1.34
		p + .03	+ 3.70

High wind and fleecy black clouds. A. 7.

METIS.

DATE.	OBJECTS.	Observed times of transit. A	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
1849.		s.	s.	s.	h m. s.	w.	revs.	m. s.	revs.	
Nov. 12	Metis - - - - -	27.5	40.5		22 40 40.47	1	41.892			Corr. Chron. m. s. +1 5.35
	43288, Lalande - -			3.0	40 50 10	2	44.448	— 0 9.63	+32.707	
										α h. m. s. δ ° ′ ″
										43288, Lalande 22 4 20.25 —18 45 58.80
	Metis - - - - -		25.5	38.0	52 25.17	1	41.625			
	43288, Lalande - -		34.0	47.1	52 33.97	2	44.495	0 8.80	33.021	Metis—43288, Lalande Δα s. Δδ ′ ″
	Metis - - - - -	20.0		46.2	0 43 33.10	2	38.329			h. m. s.
	43288, Lalande - -	25.1	38.0	51.0	43 38.03	3	44.236	0 4.93	35.820	Sid. T. 0 21 7.20 —0 6.04 +8 54.57
										Δρ + .02 0.71
										p + .13 + 3.50
	Metis - - - - -	5.2	18.5		46 18.50	2	38.925			
	43288, Lalande - -		23.5		46 23.50	3	44.359	0 5.00	35.347	
	Metis - - - - -	25.2	38.0		49 38.00	2	38.883			
	43288, Lalande - -		43.0	55.5	49 43.00	3	44.181	0 5.00	35.211	
	Metis - - - - -	18.5		44.2	53 31.35	2	38.821			
	43288, Lalande - -	23.0		49.5	53 36.25	3	44.044	0 4.90	35.136	
	Metis - - - - -	11.0		37.2	55 24.10	2	38.490			
	43288, Lalande - -	16.0		42.5	55 29.25	3	43.998	0 5.15	35.421	
	Metis - - - - -	31.2		57.0	58 44.10	2	38.219			
	43288, Lalande - -	36.5	49.0	1.5	58 49.00	3	43.869	— 0 4.90	35.563	Very clear.—A. 10.
Nov. 13	43288, Lalande - -	21.2	34.4	47.5	22 54 34.37	3	44.825	+ 0 43.80	62.867	Corr. Chron. m. s. +1 7.47
	Metis - - - - -	5.0	18.5	31.0	55 18.17	1	42.022			
	43288, Lalande - -	41.2	54.1	7.0	58 54.10	3	44.766	0 44.30	62.979	α h. m. s. δ ° ′ ″
	Metis - - - - -	25.2	39.0	51.0	59 38.40	1	41.851			43288, Lalande 22 4 20.23 —18 45 58.86
	43288, Lalande - -	22.1	35.0	48.0	23 3 35.03	3	44.856	0 44.70	63.280	Metis — 43288, Lalande Δα s. Δδ ′ ″
	Metis - - - - -	7.0	19.2	33.0	4 19.73	1	41.640			h. m. s.
	43288, Lalande - -	21.3	34.3	47.7	9 34.43	3	44.755	0 44.64	63.381	Sid. T. 23 8 58.29 +0 44.51 +16 12.07
	Metis - - - - -	6.0	19.2	32.0	10 19.07	1	41.438			Δρ .01 0.99
										p + .06 + 3.59
	43288, Lalande - -	47.2	0.5	12.1	14 59.93	3	44.706	0 44.50	63.448	
	Metis - - - - -	31.5	44.8	57.0	15 44.43	1	41.322			
	43288, Lalande - -	47.2	59.7	13.1	21 0.00	3	44.719	+ 0 45.10	+63.485	
	Metis - - - - -	32.0		58.2	21 45.10	1	41.298			Very clear.—A. 10.
Nov. 27	Metis - - - - -	30.8	43.1	56.0	23 48 43.30	2	43.573			Corr. Chron. m. s. +1 31.31
	(10) - - - - -		52.0	5.1	49 52.30	1	50.511	— 1 9.00	—23.213	
	Metis - - - - -	21.0	33.0	45.0	54 33.00	2	42.999			α h. m. s. δ ° ′ ″
	(10) - - - - -	29.1	42.0	54.8	55 41.63	1	50.158	1 8.63	22.992	(10) 22 20 35.80 —16 25 52.59
	Metis - - - - -	59.0	12.0	25.0	59 12.00	2	42.620			
	(10) - - - - -	7.0	20.0	33.0	0 00 20.00	1	50.108	1 8.00	22.663	Metis — (10) Δα m. s. Δδ ′ ″
	Metis - - - - -	40.7	53.0	6.0	7 53.23	2	42.330			h. m. s.
	(10) - - - - -	49.0	1.2	14.1	9 1.43	1	50.000	1 8.20	22.481	Sid. T. 0 3 5.64 —1 8.36 —5 49.82
										Δρ — .01 — 0.34
										p + .10 + 3.19
	Metis - - - - -	17.3	30.0	43.0	17 30.10	2	41.461			
	(10) - - - - -	25.0	38.2	51.0	18 38.07	1	49.172	— 1 7.97	—22.440	Stars blurred and unsteady.—A. 8.
Dec. 5	7836, B. A. C. - - -	49.2	2.0	14.0	23 19 1.73	3	40.154	+ 6 42.00	+16.866	
	(11) - - - - -	.	42.7	54.2	19 42.18	3	35.888	+ 6 1.55	+12.600	
	Metis - - - - -	31.2	44.0		25 43.73	2	53.201			

(Continued.)

METIS.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
49. 5	7836, B. A. C. - -	42.4	55.1	7.3	23 39 54.93	3 38.789	+ 6 43.95	+17.330
	(11) - - - - - -			48.0	40 35.37	3 34.620	6 3.51	13.161
	Metis - - - - -	26.2	39.2		46 38.88	2 51.372		
	7836, B. A. C. - -	26.1		51.0	54 38.55	3 38.781	6 43.45	17.824
	Metis - - - - -		22.0	35.2	0 1 22.00	2 50.870		
	7836, B. A. C. - -	55.2	8.2	21.0	7 8.13	3 36.799	6 44.65	17.842
	(11) - - - - - -			1.0	7 48.13	3 32.889	6 4.65	13.932
	Metis - - - - -	39.5	53.2		13 52.78	2 48.870		
	7836, B. A. C. - -	19.4	32.7	45.0	19 32.37	3 36.849	6 44.45	18.241
	(11) - - - - - -		12.0	25.0	20 12.02	3 32.637	+ 6 4.80	+14.029
	Metis - - - - -	4.0	17.0		26 16.82	2 48.521		
6	Metis - - - - -			52.0	23 13 39.65	3 42.353		
	Weisse XXII, 640 -			10.0	13 57.65	1 36.292	— 0 18.00	—66.125
	Weisse XXII, 644 -			15.0	14 2.65	1 38.416	0 23.00	64.001
	Metis - - - - -	3.0	15.0		27 15.00	3 41.770		
	Weisse XXII, 640 -		33.0	45.0	27 33.00	1 36.249	0 18.00	65.585
	Weisse XXII, 644 -		37.0	50.0	27 37.00	1 38.323	0 22.00	63.511
	Metis - - - - -	39.2	51.7		32 51.63	3 41.600		
	Weisse XXII, 644 -	1.7	13.6	26.2	33 13.83	1 38.505	0 22.20	63.159
	Metis - - - - -	38.9	51.7		35 51.70	3 41.490		
	Weisse XXII, 640 -		9.0		36 9.00	1 36.233	0 17.30	65.321
	Weisse XXII, 644 -	0.2		26.0	36 13.10	1 38.445	0 21.40	63.109
	Metis - - - - -	3.4	16.1		40 16.18	3 41.411		
	Weisse XXII, 644 -	24.3	37.1	50.0	40 37.13	1 38.374	0 20.95	63.101
	Metis - - - - -	56.2	8.1		45 8.32	3 41.291		
	Weisse XXII, 640 -		25.0	38.1	45 24.82	1 36.180	0 16.50	65.175
	Weisse XXII, 644 -	17.2		42.0	45 29.60	1 38.445	0 21.28	62.910
	Metis - - - - -	21.7	34.7		51 34.72	3 41.138		
	Weisse XXII, 644 -	41.9	55.2	8.1	51 53.07	1 38.380	0 20.35	62.822
	Metis - - - - -	3.3	16.5		54 16.50	3 40.925		
	Weisse XXII, 644 -		37.1	49.3	54 37.10	1 38.405	0 20.60	62.584
	Metis - - - - -	47.1	59.5		57 59.50	3 40.862		
	Weisse XXII, 644 -		20.1	33.0	58 20.10	1 38.365	0 20.60	62.561
	Metis - - - - -	37.2	49.5		0 0 49.50	3 40.645		
	Weisse XXII, 644 -		10.2	22.7	1 10.20	1 38.380	0 20.70	62.329
	Metis - - - - -	28.2	41.0		3 41.00	3 40.568		
	Weisse XXII, 644 -		1.3	14.1	4 1.30	1 38.348	0 20.30	62.284
	Metis - - - - -	2.1	15.0		6 15.03	3 40.513		
	Weisse XXII, 644 -	22.1	35.0	48.0	6 35.03	1 38.250	0 20.00	62.327
	Metis - - - - -	59.0	11.5		11 11.58	3 40.518		
	Weisse XXII, 644 -	18.5	31.7	44.1	11 31.43	1 38.370	0 19.85	62.212
	Metis - - - - -	59.7	12.6		15 12.60	3 40.254		
	Weisse XXII, 640 -		27.0	40.0	15 27.32	1 35.989	0 14.72	64.329
	Weisse XXII, 644 -	19.7	32.0	44.5	15 32.07	1 38.273	0 19.47	62.045
	Metis - - - - -	24.1	37.3		23 37.30	3 40.167		
	Weisse XXII, 644 -		56.1	9.0	23 56.10	1 38.258	0 18.80	61.973
	Metis - - - - -	20.0	32.7		26 32.70	3 39.938		
	Weisse XXII, 644 -		51.7	4.0	26 51.70	1 38.182	— 0 19.00	—61.820

RESULTS.

Corr. Chron. m. s. +1 50.30

	α h. m. s.	δ ° ′ ″
7836, B. A. C.	22 22 13.40	—15 21 7.17
(11)	22 22 53.94	—15 20 4.50

Metis—7836, B. A. C.

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	0 0 37.14	+6 43.70	+4 30.85
	Δ ρ	.00	0.25
	p	+ .08	+ 3.04

Metis—(11)

		m. s.	′ ″
Sid. T.	23 59 58.35	+6 3.63	+3 26.45
	Δ ρ	.00	0.19
Misty—A. 7.	p	+ .08	+ 3.04

Corr. Chron. m. s. +1 52.30

	α h. m. s.	δ ° ′ ″
Weisse XXII, 640.	22 30 28.55	—14 50 13.24
Weisse XXII, 644.	22 30 33.04	—14 50 47.65

Metis—Weisse XXII, 640.

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	23 41 17.75	—0 16.90	—16 43.33
	Δ ρ	— .01	--- .85
	p	+ .06	+ 3.04

Metis—Weisse XXII, 644.

		m. s.	′ ″
Sid. T.	23 56 00.61	—0 20.66	—16 3.33
	Δ ρ	— 0.01	— 0.85
	p	+ .11	+ 3.02

High wind—A. 7.

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Dec. 11	Metis		34.2	47.0	23 19 34.13	2 36.351			
	Weisse XXII, 815 .		10.0	23.1	21 10.13	2 43.050	— 1 36.00	+ 6.699	Corr. Chron. m. s. + 2 3.98
	7954, B. A. C. . .	20.3	33.4	45.7	24 33.13	3 29.500	4 59.00	23.062	
	Metis	0.0	12.3	24.8	41 12.37	2 35.891			
	7954, B. A. C. . .	57.0	9.5	21.8	46 9.43	3 29.342	4 57.06	23.364	Weisse XXII, 815. a h. m s. 22 38 14.53 δ ° ′ ″ — 14 18 50.43; 7954, B. A. C. 22 41 37.46 — 14 23 4.12
	Metis	29.1	41.0	53.5	49 41.20	2 35.554			
	7954, B. A. C. . .	24.3	37.5	49.2	54 37.00	3 29.380	4 55.80	23.739	Metis—Weisse XXII, 815. Δ a m. s. Δ δ ′ ″
	Metis	23.1	35.0	48.0	0 0 35.37	2 35.128			
	Weisse XXII, 815 .		9.3	21.5	2 9.10	2 42.941	1 33.73	7.813	Sid. T. 23 6 25.09 h. m. s. — 1 33.02 m. s. + 2 5.04
	7954, B. A. C. . .	19.2	32.0	44.2	5 31.80	3 29.241	4 56.43	24.026	Δ ρ .00 + .10; p + .02 + 2.97
	Metis	9.2	21.7	34.0	10 21.63	2 34.401			
	Weisse XXII, 815 .		54.0	6.5	11 53.85	2 43.018	1 32.22	8.617	Metis—7954, B. A. C.
	Metis	21.0	33.4	46.7	20 33.70	2 34.440			Sid. T. 23 6 3.90 h. m. s. — 4 55.64 m. s. + 6 11.58
	Weisse XXII, 815 .		5.2	17.0	22 4.80	2 43.130	1 31.10	8.690	Δ ρ .00 + 0.29; p + .02 + 2.96
	7954, B. A. C. . .	16.2	29.2	41.0	25 28.80	3 29.121	4 55.10	24.594	
	Metis	28.1	41.0	53.2	30 40.77	2 34.893			
	Weisse XXII, 815 .		13.0	25.2	32 12.83	2 43.749	1 32.06	8.856	
	7954, B. A. C. . .	22.1	34.5	47.3	35 34.63	3 30.112	4 53.86	25.132	
	Metis	29.3		54.5	45 41.90	2 34.509			
	Weisse XXII, 815 .	59.5		25.1	47 12.30	Lost.			
	7954, B. A. C. . .	21.3	34.1	47.0	50 34.13	3 29.900	4 52.23	25.304	Night, windy—A. 6.
12	Metis	48.1	0.3	13.0	23 29 0.47	1 42.560			
	7954, B. A. C. . .	24.2	36.2	49.2	32 36.53	3 45.701	3 36.06	63.205	Corr. Chron. m. s. + 2 6.26
	Metis	48.1	0.2	12.5	38 0.27	1 42.148			
	7954, B. A. C. . .	25.1	38.1	50.4	41 37.90	3 45.670	3 37.63	62.586	7954, B. A. C. a h. m. s. 22 41 37.45 δ ° ′ ″ — 14 23 4.18
	Metis	16.2	28.0	41.0	47 28.40	1 41.749			
	7954, B. A. C. . .	52.0	4.7	17.1	51 4.60	3 45.748	3 36.20	64.063	Metis—7954, B. A. C. Δ a m. s. Δ δ ′ ″
	Metis	10.2	22.8	35.1	55 22.70	1 41.740			
	7954, B. A. C. . .	47.0	59.1	11.8	58 59.30	3 45.286	3 36.60	63.610	Sid. T. 23 52 24.53 h. m. s. — 3 36.59 m. s. + 16 20.03
	Metis	58.7	11.9	24.2	0 2 11.60	1 41.511			Δ ρ + .01 + 0.80; p + .06 + 2.93
	7954, B. A. C. . .	35.7	48.1	0.8	5 48.20	3 45.595	3 36.60	64.148	
	Metis	33.0	46.2		9 46.20	1 41.650			
	7954, B. A. C. . .	9.7	23.0	35.2	13 22.63	3 45.532	— 3 36.43	+63.946	A. 5.
18	7976, B. A. C. . .	28.0	41.0	53.2	23 32 40.73	1 65.109	+ 0 1.97	—18.802	Corr. Chron. m. s. + 2 20.62
	Metis	30.0	43.0	55.1	32 42.70	2 53.760			
	7976, B. A. C. . .	21.3	34.5	46.0	36 33.93	1 65.043	0 2.15	18.560	
	Metis		36.3	48.5	36 36.08	2 53.452			7976, B. A. C. a h. m. s. 22 46 11.30 δ ° ′ ″ — 12 59 13.46
	7976, B. A. C. . .	26.0	39.5	51.3	39 38.93	2 35.198	0 2.40	18.224	
	Metis	29.0	41.3		39 41.33	2 53.422			Metis—7976, B. A. C. Δ a m. s. Δ δ ′ ″
	7976, B. A. C. . .	28.2	40.0	52.8	42 40.33	2 35.101	0 2.37	18.207	Sid. T. 23 52 5.29 h. m. s. + 0 3.07 m. s. — 4 38.80
	Metis	30.3		55.1	42 42.70	2 53.308			Δ ρ .00 — 0.21; p + .05 + 2.81
	7976, B. A. C. . .	8.3	20.0	33.3	45 20.53	1 65.070	0 2.90	18.299	
	Metis		23.1	36.0	45 23.43	2 53.218			
	7976, B. A. C. . .	28.3	41.0	54.0	58 41.10	1 65.115	0 3.10	17.821	
	Metis	32.0	44.1	56.5	58 44.20	2 52.785			
	7976, B. A. C. . .	21.0	33.7	46.8	0 1 33.83	1 64.960	+ 0 4.17	—17.641	A. 5.
	Metis	26.0		50.0	1 38.00	2 52.450			

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Dec. 18	7976, B. A. C. . .	46.3	59.0	11.3	0 3 58.87	1 64.941	+ 0 4.20	—17.805
	Metis	50.7	3.5	15.0	4 3.07	2 52.595		
	7976. B. A. C. . .	53.7	6.0		6 6.00	1 64.760	+ 0 4.50	17.882
	Metis		10.5	23.2	6 10.50	2 52.491		
Dec. 24	Weisse XXII, 1149 .	52.0	4.2		1 2 4.2	2 49.797	+ 0 23.8	+35.713
	Weisse XXII, 1156 .	1.0	14.1		2 14.1	2 39.042	0 13.9	24.958
	Metis		28.0	41.0	2 28.0	1 44.235		
	Weisse XXII, 1149 .	36.2			6 48.8	2 49.838	0 24.3	36.004
	Weisse XXII, 1156 .	45.2	57.9		6 57.9	2 39.060	0 15.2	25.226
	Metis		13.1	25.1	7 13.1	1 43.985		
	Weisse XXII, 1149 .	58.2	10.0		11 10.0	2 49.628	0 25.1	35.788
	Weisse XXII, 1156 .	7.1	19.4		11 19.4	2 38.940	0 15.7	25.100
	Metis		35.1	47.2	11 35.1	1 43.991		
	Weisse XXII, 1149 .	21.0			14 33.6	2 49.588	0 24.1	35.970
	Weisse XXII, 1156 .	30.2	42.9		14 42.9	2 38.889	0 14.8	25.271
	Metis		57.7	10.2	14 57.7	1 43.769		
	Weisse XXII, 1149 .	41.0			17 53.6	2 49.610	0 24.6	36.081
	Weisse XXII, 1156 .	50.0	2.5		18 2.5	2 38.818	0 15.7	25.289
	Metis		18.2	31.0	18 18.2	1 43.680		
	Weisse XXII, 1149 .	55.2	7.3		24 7.3	2 49.402	0 25.4	36.214
	Weisse XXII, 1156 .	4.0	16.4		24 16.0	2 38.888	+ 0 16.7	+25.700
	Metis			45.2	24 32.7	1 43.339		
Dec. 27	Weisse XXII, 1232 .	22.3	35.1	48.0	0 24 35.13	1 41.577	+ 1 14.04	—38.288
	Metis	37.0	48.5	2.0	25 49.17	2 49.714		
	Weisse XXII, 1232 .	53.5	6.1	18.7	28 6.10	1 41.588	1 14.60	38.084
	Metis		21.0	33.0	29 20.70	2 49.521		
	Weisse XXII, 1232 .	9.1	21.0	34.3	31 21.47	1 41.515	1 16.23	38.017
	Metis	25.0	38.1	50.0	32 37.70	2 49.381		
	Weisse XXII, 1232 .	49.0	1.3	13.8	36 1.37	1 41.383	1 15.70	38.052
	Metis	4.7	17.0	29.5	37 17.07	2 49.284		
	Weisse XXII, 1232 .	19.6	32.0	44.6	39 32.07	1 41.329	1 16.26	37.980
	Metis	35.8	48.0	1.2	40 48.33	2 49.156		
	Weisse XXII, 1232 .	9.5	22.1	34.6	42 22.40	1 41.378	1 16.10	37.861
	Metis	25.5		51.5	43 38.50	2 49.088		
	Weisse XXII, 1232 .	53.2	5.8	18.1	46 5.70	1 41.360	1 16.37	37.687
	Metis	10.0	22.2	34.0	47 22.07	2 48.896		
	Weisse XXII, 1232 .	32.0	44.1	57.0	51 44.37	1 41.258	+ 1 16.36	—37.360
	Metis	48.0	1.2	13.0	53 0.73	2 48.467		
Dec. 31	Metis	22.0	34.6		0 58 34.67	1 45.998		
	Weisse XXIII, 85 .	40.8	54.0	6.5	58 53.77	2 39.240	— 0 19.10	+23.393
	Metis	56.1	9.0		1 2 8.73	1 45.850		
	Weisse XXIII, 85 .	16.2	28.7	41.0	2 28.63	2 39.339	0 19.90	23.640
	Metis	0.5	12.8		5 12.77	1 45.648		
	Weisse XXIII, 85 .	19.7	32.0	44.2	5 31.97	2 39.160	0 19.20	23.663
	Metis	34.2	46.5		7 46.52	1 45.478		
	Weisse XXIII, 85 .	53.0	5.0	17.5	8 5.17	2 39.192	— 0 18.65	+23.865

RESULTS.

Corr. Chron. m. s. + 2 30.94

	α h m. s.	δ ° ′ ″
Weisse XXII, 1149	22 54 30.36	—12 7 6.43
Weisse XXII, 1156	22 54 39.74	—12 4 19.92

Metis—Weisse XXII, 1149

		Δα m. s.	Δδ ′ ″
Sid. T.	1 15 41.74	+ 0 24.55	+ 9 12.78
	Δρ	.02	0.50
	ρ +	.11	+ 2.62

Metis—Weisse XXII, 1156.

Sid. T.	1 15 41.74	+ 0 15.33	+ 6 28.33
	Δρ	.01	0.15
	ρ +	.11	+ 2.62

Bright moon light.—A. 8.

Corr. Chron. m. s. + 2 36.08

	α h. m. s.	δ ° ′ ″
Weisse XXII, 1232	22 58 2.06	—11 14 51.69

Metis — XXII, 1232

		Δα m. s.	Δδ ′ ″
Sid. T.	0 41 20.86	+ 1 15.71	— 9 42.81
	Δρ —	.01	— 0.45
	ρ +	.08	+ 2.61

A. 8.

(Continued.)

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ a	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
1849. Dec. 31	Metis	52.5	4.7	17.2	1 15 4.80	1 45.159			Corr. Chron. + 2 47.17 m. s.
	Weisse XXIII, 85 .	11.2	23.4	35.0	15 23.20	2 39.020	— 0 18.40	+24.012	
	Metis			25.5	19 13.00	1 44.846			
	Weisse XXIII, 85 .			43.0	19 30.50	2 39.341	0 17.50	24.646	
	Metis	22.1	34.1	46.5	23 34.20	1 44.798			
	Weisse XXIII, 85 .	39.5	51.7	4.3	23 51.83	2 39.171	— 0 17.63	+24.524	

	a	δ
	h. m. s.	° ′ ″
Weisse XXIII, 85	23 5 39.18	—10 44 51.28
Metis—Weisse XXIII, 85	h. m. s.	s. ′ ″
Sid. T.	1 13 0.70	— 0 18.63 + 6 8.34
	Δ =	+ .03 0.57
	p	+ .13 + 2.43

Stars blurred.—A. 8.

SATURN.—MEASUREMENT OF POLAR DIAMETER.

Date.	Mean of times.	S. L.	N. L.	Revs.	Results.
1849.	h. m.	Revs.	Revs.	Revs.	s.
Sept. 14	22 52.00	41.551	40.334	1.217	Corr. Chron. —0 47
		.552	.392	.160	
		.620	.306	.314	h. m. ″
		.580	.324	.256	Sid. T. 22 51.2 18.93
		.558	.322	.236	Diam. of wire, — .43
		.543	.302	.241	P. Diam. of Planet, 18.50
		.419	.360	.059	
		.560	.307	.253	
		.559	.324	.235	
		41.621	40.269	.352	
25	23 26.15	38.560	37.342	1.218	
		.130	36.890	.240	s.
		.120	.894	.226	Corr. Chron. —0 23.5
		.145	.890	.255	
		.202	.952	.250	h. m. ″
		.209	.972	.237	Sid. T. 23 25.8 19.38
		.251	.929	.322	Diam. of wire, .42
		.291	37.010	.281	P. Diam. of Planet, 18.96
		.240	36.979	.261	
		.342	37.057	.285	
		.359	.020	.339	
		.341	.111	.230	
		.392	.080	.312	
		.359	.179	.180	
		.200	36.801	.399	
		.145	.900	.245	
		.176	.950	.226	
		.338	37.098	.240	
		.372	.128	.244	
		.340	.100	.240	
Oct. 8	21 40.00	40.869	39.749	1.120	
		41.011	.768	.243	

Date.	Mean of wires.	S. L.	N. L.	Revs	Results.
1849.	h. m.	Revs.	Revs.	Revs	
Oct. 8	21 40.00	41.067	39.833	1.234	
		41.001	.812	.189	
		41.157	40.023	.134	
	21 45.00	40.781	39.716	1.065	
		40.940	.828	.112	m. s.
		41.027	.789	.228	Corr. Chron. —0 0.49
		.069	.842	.227	
		.133	.851	.282	h. m. ″
	21 51.00	41.140	39.790	1.350	Sid. T. 21 55.0 18.74
		.177	40.000	.177	Diam. of wire, .43
		.203	.047	.156	P. Diam. of Planet, 18.31
		.261	.048	.213	
		.258	.090	.168	
	21 56.00	40.832	39.629	1.203	
		.891	.711	.180	
		.950	.630	.320	
		.927	.650	.277	
		.940	.691	.249	
	22 07.00	40.585	39.333	1.252	
		.600	.380	.220	
		.601	.449	.152	
		.659	.400	.259	
		.665	.374	.291	
	22 12.00	40.746	39.466	1.280	
		.703	.448	.255	
		.772	.538	.234	
		.841	.626	.215	
		.793	.581	.212	
		40.839	39.693	1.146	
		.958	.670	.288	
		.949	.720	.229	
		.983	.759	.224	
		41.032	.750	.282	

MEASUREMENT OF EQUATORIAL DIAMETER.

		P. L.	F. L.		
	h. m.	Revs.		Revs.	
Oct. 24	21 27.00	39.918	41.191	1.273	
		.978	.138	.160	
		.900	.140	.240	
		.901	.208	.307	s.
		.940	.149	.209	Corr. Chron. +0 30.8
		.919	.269	.350	
		.878	.210	.332	h. m. ″
		.922	.280	.358	Sid. T. 21 27.5 20.04
		.900	.428	.328	Diam. of wire, — 43
		.910	.221	.311	E. Diam. of Planet, 19.61
		.931	.158	.227	
		.901	.169	.268	
		.892	.179	.287	
		.910	.170	.260	
		.901	.141	.240	

		P. L.	F. L.		
	h. m.	Revs.		Revs.	
Oct. 24	21 27.00	39.889	41.121	1.232	
		.890	.144	.254	
		.888	.209	.321	
		.880	.238	.358	
		.881	.210	.329	
			.233	.352	
			.238	.357	
			.338	.457	
			.321	.440	
		39.881	.192	.311	
			.171	.290	
			.161	.280	
			.278	.397	
			.237	.356	
			.125	.244	

EXTERNAL DIAMETER OF THE RING.

		P. L.	F. L.		
	h. m.			Revs.	
Oct. 25	23 5.00	39.941	42.650	2.709	
			.679	.738	
			.741	.800	
			.719	.778	
			.810	.869	
			.800	.859	

		P. L.	F. L.		
	h. m.			Revs.	
Oct. 25	23 5.00	39.941	42.841	2.900	Corr. Chron. s. +0 27.8
			.638	.697	
			.773	.832	h. m. ″
			.732	.791	Sid. T. 23 5.5 42.08
			.799	.858	Diam. of wire, — .43
					Diam. of Ring, 42.65

SATURN.—MEASUREMENT OF EQUATORIAL DIAMETER.

Date.	Mean of wires.	P. L.	F. L.	Revs.	Results.		Date.	Mean of wires.	P. L.	F. L.	Revs.
1849.	h. m.	*Revs.*					1849.	h. m.	*Revs.*		
Oct. 25	22 44.00	39.941	41.278	1.337			Oct. 25	22 50.00	39.941	41.201	1.260
			.301	.360		s.				.261	.320
			.069	.128	Corr. Chron.	+0 27.4				.197	.256
			.211	.270						.220	.279
			.195	.254	h. m.	"				.380	.439
			.191	.250	Sid. T. 22 47.5	19.98				.272	.331
			.303	.362	Diam. of wire,	.43				.250	.309
			.248	.307	E. Diam. of Planet,	19.55				.200	.259
			.337	.394						.329	.388
			.276	.335						.150	.209
			.200	.259							

CERES.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1849. Sept. 18	Ceres - - - - -	31.0	45.0	58.7	19 32 44.90	1 43.620		
	6209, B. A. C. - -	31.0	44.8	59.1	33 44.97	3 44.593	— 1 00.07	+61.037
	Ceres - - - - -		13.0	28.0	19 47 13.38	1 42.515		
	6209, B. A. C. - -	59.1	12.8	28.1	48 13.33	3 43.652	0 59.95	61.201
	Ceres - - - - -		48.0	2.5	20 53 48.08	1 37.776		
	6209, B. A. C. - -	32.3		0.0	54 46.15	3 38.868	— 0 58.07	+61.156
Sept. 19	Ceres - - - - -	15.4	29.5		19 55 29.5	1 41.921		
	6209, B. A. C. - -		43.8	58.7	55 43.8	3 43.587	— 0 14.3	+61.730
	Ceres - - - - -	48.1	1.5		20 12 1.5	1 41.298		
	6209, B. A. C. - -		15.2		12 15.2	3 43.009	0 13.7	61.775
	Ceres - - - - -	30.0	44.2		23 44.2	1 40.709		
	6209, B. A. C. - -		58.1	12.0	23 58.1	3 42.538	— 0 13.9	+61.893
Sept. 21	6209, B. A. C. - -	17.0	31.8	46.0	19 7 31.60	3 51.317	+ 1 18.45	+63.532
	Ceres - - - - -	36.0			8 50.05	1 47.849		
	6209, B. A. C. - -	31.0		58.5	17 44.75	3 51.068	1 18.38	63.324
	Ceres - - - - -	49.0	3.2	17.2	19 3.13	1 47.808		
	6209, B. A. C. - -	4.1	18.4		28 18.15	3 51.006	1 19.05	63.460
	Ceres - - - - -	23.5	37.1	51.0	29 37.20	1 47.610		
	6209, B. A. C. - -	34.3	48.2		38 48.33	3 50.960	1 19.00	63.525
	Ceres - - - - -	53.0	7.5	21.5	40 7.33	1 47.499		
	6209, B. A. C. - -	29.2	43.5		58 43.50	3 50.179	+ 1 19.57	+63.243
	Ceres - - - - -	49.2		17.0	20 1 3.07	1 47.000		

RESULTS.

Corr. Chron. —0 39.59 s.

	α h. m. s.	δ ° ′ ″
6209, B. A. C.	18 11 21.83	— 29 53 0.42

Ceres—6209, B. A. C.		Δ α s.	Δ δ ′ ″
Sid. T.	20 3 55.86	—0 59.36	+ 15 39.67
	Δρ +	.09	2.61
	p —	.09	+ 2.72

Corr. Chron. —0 37.51 s.

	α h. m. s.	δ ° ′ ″
6209, B. A. C.	18 11 21.81	—29 53 0.43

Ceres—6209, B. A. C.		Δ α s.	Δ δ ′ ″
Sid. T.	20 9 47.56	—0 13.97	+15 49.91
	Δρ +	.10	2.78
	p —	.09	+ 2.80

Corr. Chron. —0 32.90 s.

	α h. m. s.	δ ° ′ ″
6209, B. A. C.	18 11 21.77	—29 53 0.46

Ceres—6209, B. A. C.		Δ α m. s.	Δ δ ′ ″
Sid. T.	19 31 11.26	+1 18.89	+16 14.79
	Δρ +	.05	2.23
	p —	.06	+ 2.90

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Oct. 15	Astræa	56.5	9.2	21.0	22 59 8.90	3 35.360			Corr. Chron. + 0 16.29 s.
	Weisse III, 781 . .	58.2	11.0	23.5	23 3 10.90	1 28.031	— 4 2.00	—67.393	
	Astræa	41.0	54.0	6.0	13 53.67	3 36.158			α h. m. s. δ ° ′ ″
	Weisse III, 781 . .	43.2	56.1	9.2	17 56.17	1 28.392	4 2.50	67.830	Weisse III, 781 3 40 36.82 + 11 14 33.43
	Astræa	13.9	26.7		30 26.70	3 36.009			Astræa—Weisse III, 781 Δα h. m. s. Δδ ′ ″
	Weisse III, 781 . .		29.5	41.3	34 29.46	1 28.426	4 2.76	67.647	Sid. T. 23 23 39.30 — 4 2.43 — 17 22.57
	Weisse III, 786 . .			58.1	34 45.59	1 40.107			Δρ + .03 — .69
	Astræa	50.3	2.7	15.5	50 2.77	3 37.433			ρ — .25 + 2.79
	Weisse III, 781 . .	53.2	5.0	17.5	54 5.23	1 29.064	— 4 2.46	—68.433	
Nov. 2	(12)	40.7	53.5	6.2	1 23 53.47	3 42.460	+ 2 27.03	+27.502	Corr. Chron. + 0 46.05 s.
	Astræa	8.0		33.0	26 20.50	2 44.871			Δα h. m. s. δ ° ′ ″
	(12)	52.5	4.1	17.2	36 4.60	3 42.506	2 25.90	27.511	(12) 3 21 18.90 + 9 26 4.41
	Astræa	18.0		43.0	38 30.50	2 44.908			
	(12)	47.5	59.7	12.3	2 5 59.83	3 42.703	2 24.84	27.495	Astræa— (12) Δα h. m. s. Δδ ′ ″
	Astræa	12.0	25.0	37.0	8 24.67	2 45.121			Sid. time 1 54 8.19 + 2 25.74 + 7 00.62
	(12)	35.2	47.8	0.1	17 47.70	3 42.626	+ 2 25.20	+26.947	Δρ .00 .16
	Astræa	0.7	13.0	25.0	20 12.90	2 45.592			ρ — .11 + 2.84
Nov. 4	(12)	20.2	32.5	45.0	0 19 32.57	1 54.981	+ 0 42.15	— 7.499	Corr. Chron. + 0 51.31 s.
	Astræa	2.0	15.0		20 14.72	1 62.480			
	(12)	11.0	24.2	36.3	35 23.83	2 24.751	0 41.72	7.910	α h. m. s. δ ° ′ ″
	Astræa	53.0		18.5	36 5.75	2 32.661			(12) 3 21 18.91 + 9 26 4.39
	(12)	26.2	38.1	51.0	42 38.43	2 24.659	0 41.07	8.202	Astræa— (12) Δα h. m. s. Δδ ′ ″
	Astræa	7.0	19.5	32.0	43 19.50	2 32.861			Sid. T. 0 59 42.19 + 0 40.68 — 2 6.03
	(12)	10.2	22.7	35.0	55 22.63	2 24.838	0 40.65	7.890	Δρ .00 — .05
	Astræa		3.0	16.0	56 3.28	2 32.728			ρ — .18 + 2.95
	(12)	30.9	43.3	56.2	1 3 43.47	2 24.939	0 40.26	8.527	
	Astræa	11.0	24.2	36.0	4 23.73	2 33.466			
	(12)	26.2	39.1	51.0	10 38.77	2 25.098	0 40.35	8.312	
	Astræa		19.3	31.5	11 19.12	2 33.410			
	(12)	31.5	44.1	56.3	22 43.97	2 25.432	0 39.76	8.570	
	Astræa	11.0	24.0	36.2	23 23.73	2 34.002			
	(12)	5.3	18.1	30.3	35 17.90	2 25.470	+ 0 39.30	— 8.681	
	Astræa		57.0	10.3	35 57.20	2 34.151			
Nov. 5	Astræa	56.1	8.0	21.2	1 18 8.43	3 29.741			Corr. Chron. + 0 52.84 s.
	(12)	11.0	24.0	36.2	18 23.73	2 33.581	— 0 15.30	—26.073	
	Astræa	53.5	6.2	18.5	30 6.07	3 29.838			α h. m. s. δ ° ′ ″
	(12)			33.5	30 20.95	2 33.641	0 14.88	26.110	(12) 3 21 18.94 + 9 26 4.35
	Astræa	30.5	43.2	55.8	41 43.17	3 30.548			Astræa— (12) Δα h. m. s. Δδ ′ ″
	(12)		58.0	11.2	41 58.27	2 34.046	0 15.10	26.415	Sid. T. 1 35 6.26 — 0 15.48 — 6 43.43
	Astræa	44.1	56.0	8.0	46 56.03	3 30.525			Δρ .00 — 0.16
	(12)		12.0	25.2	1 47 12.63	2 34.053	— 0 16.63	—26.385	ρ — .13 + 2.90

ASTRÆA.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s	revs.
49.								
. 6	Astræa - - - -	20.3	33.1	45.3	0 37 32.90	2 42.109		
	(12) - - - - -	28.7		53.2	38 40.95	1 28.947	— 1 8.05	—43.313
	Astræa - - - -	53.0	6.0	18.2	53 5.73	2 42.320		
	(12) - - - - -	2.0	14.2	27.0	54 14.40	1 28.832	— 1 8.67	—43.639
	1068, B. A. C. - -	34.3	47.5	59.2	0 59 47.00	2 52.741	+ 1 6.17	+10.456
	Astræa - - - -	40.7	53.0	5.8	1 0 53.17	2 42.285		
	(12) - - - - -	51.0	3.2	15.1	2 3.10	1 28.821	— 1 9.93	—43.615
	1068, B. A. C. - -	21.2	34.2	46.3	1 13 33.90	2 53.206	+ 1 6.35	+10.849
	Astræa - - - -	28.2		52.3	14 40.25	2 42.357		
	(12) - - - - -	38.0	49.7	2.3	15 50.00	1 29.211	— 1 9.75	—43.297
	1068, B. A. C. - -	23.2	36.2	48.1	21 35.83	2 53.440	+ 1 5.77	+10.160
	Astræa - - - -	29.1	41.5	54.2	22 41.60	2 43.280		
	(12) - - - - -	39.5	52.1	4.2	23 51.93	1 29.431	— 1 10.33	—44.000
	1068, B. A. C. - -		33.1	45.2	27 33.50	2 53.589	+ 1 5.90	+10.253
	Astræa - - - -	27.1	39.1	52.0	28 39.40	2 43.336		
	(12) - - - - -	37.2	49.2	2.0	29 49.47	1 29.543	— 1 10.07	—43.944
	1068, B. A. C. - -		28.1	40.3	1 39 27.75	2 53.606	+ 1 5.15	+ 9.976
	Astræa - - - -	20.0	33.2	45.5	40 32.90	2 43.630		
	(12) - - - - -	31.1	43.5	56.3	41 43.63	1 29.888	— 1 10.73	—43.893
	1068, B. A. C. - -	3.2	15.8	28.2	3 21 15.73	2 27.119	+ 1 1.17	+ 8.910
	Astræa - - - -	4.0	17.5	29.2	22 16.90	2 18.209		
7	1068, B. A. C. - -	19.2	31.0	44.0	23 55 31.40	2 35.441	+ 0 13.63	— 6.549
	Astræa - - - -	33.0	45.0	57.1	55 45.03	2 41.990		
	1068, B. A. C. - -	52.3	5.0	17.5	0 0 4.93	2 35.478	0 13.57	6.482
	Astræa - - - -	6.0		31.0	0 18.50	2 41.960		
	1068, B. A. C. - -	19.3	32.1	44.2	15 31.87	2 35.963	0 12.93	6.295
	Astræa - - - -	32.5		57.1	15 44.80	2 42.258		
	1068, B. A. C. - -	32.5	45.0	57.3	18 44.93	2 35.639	0 13.17	6.664
	Astræa - - - -	46.0		10.2	18 58.10	2 42.303		
	1068, B. A. C. - -	46.6	59.5		20 59.50	2 35.562	0 12.70	6.904
	Astræa - - - -		12.2	24.1	21 12.20	2 42.466		
	1068, B. A. C. - -	54.2	7.0		29 7.00	2 35.771	0 12.10	6.609
	Astræa - - - -		19.1	31.0	29 19.10	2 42.380		
	1068, B. A. C. - -	20.2	33.1		31 33.10	2 35.848	0 11.90	6.742
	Astræa - - - -		45.0	57.2	31 45.00	2 42.590		
	1068, B. A. C. - -	27.6	39.7		33 39.70	2 35.612	0 11.30	7.125
	Astræa - - - -		51.0	4.0	33 51.00	2 42.737		
	1068, B. A. C. - -	13.3	25.1		37 25.10	2 35.590	0 11.90	6.770
	Astræa - - - -		37.0	49.2	37 37.00	2 42.360		
	1068, B. A. C. - -	15.0	27.1		39 27.10	2 35.601	+ 0 11.90	— 7.117
	Astræa - - - -		39.0	51.0	39 39.00	2 42.718		
10	Astræa - - - -	18.2	31.0	43.0	0 46 30.73	3 23.960		
	Weisse III, 299 - -	1.0	14.1	26.2	47 13.77	1 37.659		
	1068, B. A. C. - -		10.0	22.3	40 9.77	1 26.502	— 2 39.04	57.522
	Astræa - - - -	25.2	37.1	49.5	51 37.27	3 24.173		
	1068, B. A. C. - -	4.5	16.2	29.3	54 16.67	1 26.617	2 39.40	57.620
	Astræa - - - -	23.5	36.0	48.0	57 35.83	3 24.408		
	Weisse III, 299 - -		19.0	31.5	58 19.08	1 27.835		
	1068, B. A. C. - -	2.8	15.0	27.8	1 0 15.20	1 26.405	— 2 39.37	—58.067

RESULTS.

Corr. Chron. +0 55.04 s.

	α h. m. s.	δ ° ′ ″
(12)	3 21 18.96	+9 26 4.33
1068, B. A. C.	3 19 2.88	+9 12 15.64

Astræa—(12)		Δ α m. s.	Δ δ ′ ″
	h. m. s.		
Sid. T.	1 12 04.46	—1 9.65	—11 12.30
	Δ ρ	.00	— .27
	p	— .16	+ 2.94

Astræa—1068, B. A. C.			
	h. m. s.	m. s.	′ ″
Sid. T.	1 42 32.41	+1 5.08	+ 2 35.26
	Δ ρ	.00	.06
	p	— .12	+ 2.84

Corr. Chron. +0 56.74 s.

	α h. m. s.	δ ° ′ ″
1068, B. A. C.	3 19 2.89	9 12 15.61

Astræa—1068, B. A. C.		Δ α m. s.	Δ δ ′ ″
	h. m. s.		
Sid. T.	0 23 21.71	+0 12.51	—1 43.36
	Δ ρ	.00	— .04
	p	— .21	+ 3.05

Corr. Chron. +1 2.19 s.

	α h. m. s.	δ ° ′ ″
1068, B. A. C.	3 19 2.91	+9 12 15.53

Astræa—1068, B. A. C.		Δ α m. s.	Δ δ ′ ″
	h. m. s.		
Sid. T.	0 56 16.31	—2 39.46	—14 47.13
	Δ ρ +	.01	— .37
	p —	.18	+ 3.00

(Continued.)

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Nov. 10	Astræa	0.0	13.0	25.0	1 5 12.67	3 24.415		
	1068, B. A. C.	40.1	53.0	5.0	7 52.70	1 26.833	— 2 40.03	—57.646
Nov. 12	(13)	17.2	30.1	42.0	3 14 29.77	2 40.400	+ 0 54.60	— 1.160
	Astræa	12.1	24.0	37.0	15 24.37	2 41.560		
	(13)	14.0	26.1	38.5	21 26.20	2 40.659	0 54.30	1.232
	Astræa	8.0	20.5	33.0	22 20.50	2 41.891		
	(13)	18.5	30.1	43.5	27 30.70	2 40.652	+ 0 54.10	— 1.071
	Astræa	12.0		37.6	28 24.80	2 41.723		
Nov. 13	(13)	46.0		11.0	0 9 58.50	1 33.969	+ 0 3.83	—14.782
	Astræa	50.0	2.0	15.0	10 2.33	1 48.751		
	(13)	27.0	40.4	53.0	91 40.13	1 33.921	+ 0 3.20	—15.268
	Astræa	30.0	44.0	56.0	21 43.33	1 49.189		
	1057, B. A. C.			7.5	24 55.21	3 49.280	— 3 11.88	+60.155
	(13)	50.0	4.0		35 4.00	1 34.015	+ 0 2.20	—15.461
	Astræa	54.2		18.2	36 6.20	1 49.476		
	1057, B. A. C.	7.2	19.4	31.7	39 19.43	3 49.435	— 3 13.23	+60.023
	Astræa	17.0	28.0	40,2	50 28.43	1 49.789		
	1057, B. A. C.	29.0	41.0	53.0	53 41.00	3 49.510	— 3 12.57	+59.785
	(13)		39.0	52.0	1 3 39.30	1 27.889	+ 0 2.10	—15.600
	Astræa	29.2	41.0	54.2	3 41.40	1 43.489		
	1057, B. A. C.	43.5	56.2	9.0	6 56.23	3 43.072	— 3 14.83	+59.647
	(13)		49.0	2.0	2 50 49.30	1 26.721	0 2.40	—16.211
	Astræa	34.5	47.0	59.2	50 46.90	1 42.932		
	1057, B. A. C.	52.0	5.4	18.1	54 5.17	3 41.656	— 3 18.27	+58.788
Nov. 24	975, B. A. C.	50.3	2.7	40.8	1 55 2.60	3 42.981	+ 2 32.13	+57.614
	Weisse III, 35	15.2	27.8	40.0	57 27.67	1 41.670	+ 0 7.06	— 3.761
	Astræa	22.0	35.0	47.2	57 34.73	1 45.431		
	975, B. A. C.	17.2	30.1	42.0	2 9 29.77	3 42.780	2.31.73	+57.025
	Weisse III, 35	43.5	56.1	8.2	11 53.93	1 41.550	0 5.57	— 4.269
	Astræa	49.0		14.0	12 1.50	1 45.819		
	975, B. A. C.	29.2	42.0	54.3	15 41.83	3 42.940	+ 2 30.02	+57.703
	Weisse III, 35	51.2	6.5	19.2	18 6.63	1 41.405	+ 0 5.22	— 3.896
	Astræa	59.0		24.7	18 11.85	1 45.301		
	Weisse III, 62	24.0	36.0		19 36.28	2 40.841	— 1 24.43	+25.691
	975, B. A. C.	29.2	42.1	54.0	25 41.77	3 43.097	+ 2 30.30	+57.222
	Weisse III, 35		6.0		28 6.00	1 41.581	+ 0 6.07	— 4.358
	Astræa		11.5	25.2	28 12.07	1 45.939		
	Weisse III, 62	24.1	36.2	49.2	29 36.50	2 40.946	— 1 24.43	+25.158
	975, B. A. C.	46.2	59.0	11.0	36 58.73	3 42.955	+ 2 30.77	+56.725
	Weisse III, 35	12.0	24.2	37.0	39 24.40	1 41.619	+ 0 5.10	— 4.675
	Astræa			42.0	39 29.50	1 46.294		
	Weisse III, 62		54.1	6.7	40 54.20	2 40.958	— 1 24.70	+24.815
Nov. 26	975, B. A. C.	27.9	40.2	52.7	2 25 40.27	3 41.918	+ 0 46.38	+37.695
	Astræa	14.1		39.2	26 26.65	2 34.136		
	Weisse III, 35	53.0	6.0	18.0	28 5.67	1 40.391		
	Weisse III, 62		36.0	48.0	2 29 35.67	2 39.788		

RESULTS.

Nov. 12

Corr. Chron. + 1 m. 5 s. 5.78

	α (h. m. s.)	δ (° ′ ″)
(13)	3 13 29.44	+ 8 49 1.48

Astræa — (13)

	Δα (h. m. s.)	Δδ (m. s.) ″
Sid. T.	3 23 9.00 + 0 54.33	— 0 17.75
	Δρ .00	.00
	p + .01	+ 2.90

Nov. 13

Corr. Chron. + 1 m. 7 s. 69

	α (h. m. s.)	δ (° ′ ″)
(13)	3 13 29.45	+ 8 49 1.44
1057, B. A. C.	3 16 45.18	+ 8 29 44.64

Astræa — (13)

	Δα (h. m. s.)	Δδ (s.) ′ ″
Sid T.	1 1 35.72 + 0 1.79	— 3 57.70
	Δρ .00	— .10
	p — .17	+ 3.02

Astræa — 1057, B. A. C.

	h. m. s.	m. s.	′ ″
Sid. T.	1 9 40.94	— 3 14.16	+15 17.37
	Δρ	.00	.37
	p	— .14	+ 3.01

Nov. 24

Corr. Chron. + 1 m. 28 s. 33

	α (h. m. s.)	δ (° ′ ″)
975, B. A. C.	3 0 37.48	+ 7 53 16.06
Weisse III, 35	3 3 3.00	8 9 0.87
Weisse III, 62	3 4 33.34	+ 8 1 28.26

Astræa—975, B. A. C.

	Δα (h. m. s.)	Δδ (m. s.) ′ ″
Sid. T.	2 20 34.26 + 2 30.99	+ 14 40.13
	Δρ .00	.34
	p — .05	+ 2.97

Astræa—Weisse III, 35.

	h. m. s.	s.	′ ″
Sid. T.	2 20 34.26	+ 0 5.80	— 1 4.43
	Δρ	.00	— .02
	p	— .05	+ 2.97

Astræa—Weisse III, 62.

	h. m. s.	m. s.	′ ″
Sid. T.	2 30 6.14	— 1 24.52	+ 6 27.69
		.00	.15
		— .04	+ 2.97

ASTRÆA.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	° m. s.	revs.
9. 26	975, B. A. C.	59.2	11.3	23.2	2 37 11.23	3 41.791	+ 0 45.80	+37.633
	Astræa	45.0	57.1	9.0	37 57.03	2 34.071		
	Weisse III, 35	25.0	37.1	49.3	39 37.13	1 40.489		
	Weisse III, 62	55.2	7.1	19.3	41 7.20	2 39.681		
	975, B. A. C.	52.8	5.0	17.2	50 5.00	3 41.702	0 44.50	37.695
	Astræa		49.2	2.0	50 49.50	2 33.920		
	975, B. A. C.	23.6	36.2	48.5	52 36.10	3 41.730	0 44.85	37.833
	Astræa		21.2	33.2	53 20.95	2 33.810		
	975, B. A. C.	22.1	34.2	46.2	55 34.17	3 41.738	0 44.83	37.754
	Astræa	7.0	19.0	31.0	56 19.00	2 33.897		
	975, B. A. C.	7.5	20.1	32.5	58 20.03	3 41.709	0 45.57	37.526
	Astræa	53.2		18.0	59 5.60	2 34.096		
	975, B. A. C.	31.5	43.2	56.2	3 1 43.63	3 41.559	0 44.30	37.517
	Astræa		27.8	40.2	2 27.93	2 33.955		
	975, B. A. C.	19.5	31.7	44.2	4 31.80	3 41.442	+ 0 43.90	+37.483
	Astræa	3.2		28.2	5 15.70	2 33.872		
27	Astræa	12.0	25.0	37.1	0 56 24.70	1 42.318		
	975, B. A. C.	14.0	26.2	38.5	56 26.23	2 41.665	— 0 1.53	+29.498
	Astræa	8.0	20.2	33.0	59 20.40	1 42.588		
	975, B. A. C.	9.1	21.3	34.3	59 21.57	2 41.709	0 1.17	29.272
	Astræa	58.0	10.0	23.0	1 5 10.37	1 42.876		
	975, B. A. C.	0.0	12.5	25.2	5 12.57	2 42.142	0 2.20	29.417
	Astræa	8.0	21.0	33.2	9 20.73	1 42.970		
	975, B. A. C.	9.7	23.2	35.4	9 22.77	2 42.263	0 2.04	29.444
	Astræa	13.1	25.4	38.1	11 25.53	1 43.023		
	975, B. A. C.	15.5	27.5	39.7	11 27.57	2 42.170	0 2.04	29.298
	Astræa	37.1		2.0	13 49.55	1 42.856		
	975, B. A. C.	39.3	51.5	4.3	13 51.70	2 42.183	0 2.15	29.478
	Astræa	39.1	51.0	4.1	17 51.40	1 43.058		
	975, B. A. C.	41.2	54.2	6.3	17 53.90	2 41.993	0 2.50	29.086
	Astræa	34.0	46.0		19 46.33	1 43.024		
	975, B. A. C.	36.1	48.5	1.3	19 48.63	2 42.043	0 2.30	29.170
	Astræa	37.0	50.0	2.6	25 49.87	1 43.101		
	975, B. A. C.	40.1	53.2	5.8	25 53.03	2 42.059	0 3.16	29.109
	Astræa	3.7		28.2	27 15.95	1 42.729		
	975, B. A. C.	6.1	18.3	30.3	27 18.23	2 42.053	— 0 2.28	+29.475
6	Astræa	17.4	29.7	42.0	1 25 29.70	2 32.217		
	Weisse III, 967	19.4	32.0	44.0	26 31.80	1 42.721	— 1 2.10	—19.647
	Weisse III, 975		21.0	33.5	31 21.05	1 40.476		
	Astræa	30.2	42.3	54.3	36 42.27	2 32.352		
	Weisse III, 967	32.0	44.3	57.0	37 44.43	1 42.772	1 2.16	19.731
	Astræa	16.2	28.1	40.5	40 28.27	2 32.300		
	Weisse III, 967	18.0	30.5	43.1	41 30.53	1 42.713	1 2.26	19.738
	Astræa	44.8	57.0	9.5	47 57.10	2 32.322		
	Weisse III, 967	47.5	0.0	12.0	1 48 59.83	1 42.790	1 2.73	19.683
	Astræa	16.0	29.3	41.0	2 37 28.77	2 29.810		
	Weisse III, 967	30.5	33.0	45.0	38 32.83	1 40.208	— 1 4.06	—19.753

RESULTS.

m. s.
Corr. Chron. + 1 30.08

	α	δ
	h. m. s.	° ′ ″
975, B. A. C.	3 0 37.48	+ 7 53 15.96

Astræa — 975, B A. C.		Δα	Δδ
	h m. s.	s.	′ ″
Sid. T.	2 52 57.84	+ 0 45.02	+ 9 38.60
	Δρ	.00	.21
	p —	.01	+ 2.96

m. s.
Corr. Chron. + 1 33.38

	α	δ
	h m. s.	° ′ ″
975, B. A. C	3 0 37.48	+ 7 53 15.91

Astræa — 975, B. A. C.		Δδ	Δα
	h. m. s.	s.	′ ″
Sid. T.	1 14 10.86	— 0 2.14	+ 7 30.77
	Δρ	.00	.18
	p —	.14	+ 3.02

(Continued.)

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
1849. Dec. 6	Astræa	19.2	31.0	43.3	2 43 31.27	2	29.947		
	Weisse III, 967	23.0	35.0	48.1	44 35.37	1	40.081	— 1 4.10	—20.017
	Astræa	55.0	7.5	20.0	47 7.50	2	29.751		
	Weisse III, 967	59.4	12.0	24.2	48 11.80	1	40.050	1 4.30	19.852
	Astræa	15.2	28.1	39.7	53 27.67	2	29.744		
	Weisse III, 967	20.0	32.3	45.1	54 32.47	1	40.041	1 4.80	19.854
	Astræa	12.5	25.7	38.0	58 25.40	2	29.949		
	Weisse III, 967	17.5	29.7	42.0	59 29.73	1	40.220	1 4.33	19.880
	Astræa	31.0	43.2	56.0	3 3 43.40	2	29.991		
	Weisse III, 967	35.8	47.9	1.0	4 48.23	1	40.153	1 4.83	19.989
	Astræa		51.0	3.5	11 50.95	2	29.945		
	Weisse III, 967	44.1	57.0	9.0	12 56.70	1	40.164	— 1 5.75	—19.932
12	905, B. A. C.	59.3	12.2	24.6	1 10 12.03	2	33.908	+ 2 1.44	+ 0.256
	Astræa	1.0	13.4	26.0	12 13.47	2	33.652		
	Weisse III, 967	34.2	46.0	58.7	16 46.30	1	39.470	— 4 32.83	—24.333
	905, B. A. C.	17.9	30.2	42.7	21 30.27	2	27.248	+ 2 0.96	+ 0.897
	Astræa	19.2	31.5	43.0	23 31.23	2	26.351		
	Weisse III, 967	52.0	4.0	17.0	28 4.33	1	32.810	— 4 33.10	—23.692
	905, B. A. C.	9.2	21.3	33.1	34 21.20	2	27.383	+ 2 0.30	+ 0.896
	Astræa	9.0		34.0	36 21.50	2	26.487		
	Weisse III, 967	43.8	56.1	9.2	40 56.37	1	33.003	— 4 34.87	—23.635
17	Astræa	36.0		0.3	0 58 48.15	1	43.249		
	905, B. A. C.	43.2	56.0	8.5	58 55.90	2	29.723	— 0 7.75	+16.625
	Astræa	57.9	10.0		1 1 10.15	1	43.430		
	905, B. A. C.	5.2	18.0	30.2	1 17.80	2	29.832	0 7.65	16.553
	Astræa	27.0			3 39.44	1	43.523		
	905, B. A. C.	35.1	48.0	59.5	3 47.53	2	29.811	0 8.09	16.439
	Astræa	29.0	41.3	53.6	6 41.30	1	43.319		
	905, B. A. C.	36.5	49.0	1.3	6 48.93	2	29.779	0 7.63	16.611
	Astræa	21.7	34.0	46.8	9 34.17	1	43.377		
	905, B. A. C.	29.3	41.3	54.0	9 41.53	2	29.950	0 7.36	16.724
	Astræa	47.9	0.0	13.1	12 0.33	1	43.321		
	905, B. A. C.	56.1	8.2		12 8.53	2	29.859	0 8.20	16.689
	Astræa	55.1		20.5	14 7.80	1	43.251		
	905, B. A. C.	3.5		29.1	14 16.30	2	29.758	0 8.50	16.658
	Astræa	39.2	52.0		43 51.92	1	44.229		
	905, B. A. C.	48.1	0.0	13.0	44 0.37	2	30.651	0 8.45	16.573
	Astræa	19.2		44.2	46 31.70	1	44.069		
	905, B. A. C.	27.2	40.5		46 40.50	2	30.450	0 8.80	16.532
	Astræa	10.2	22.5	35.0	2 43 22.57	1	43.771		
	905, B. A. C.	19.3		44.1	43 31.70	2	30.442	0 9.13	16.822
	Astræa	40.2	52.3	5.0	45 52.50	1	43.490		
	905, B. A. C.	49.2		14.5	46 1.85	2	30.358	— 0 9.35	+17.019

RESULTS.

Corr. Chron. m. s. +1 52.64

	α h. m. s.	δ ° ′ ″
Weisse III, 967	2 54 47.83	+7 52 40.43

Astræa—Weisse III, 967	Δ α m. s.	Δ δ ′ ″
Sid. T. 2 27 53.76	— 1 3.76	— 5 4.73
Δ ρ	.00	— .12
p	— .03	+ 2.88

Corr. Chron. m. s. +2 6.80

	α h. m. s.	δ ° ′ ″
905, B. A. C.	2 48 13.02	+7 46 24.03
Weisse III, 967	2 54 47.80	+7 52 40.10

Astræa—905, B. A. C.	Δ α m. s.	Δ δ ′ ″
Sid. T. 1 26 8.87	+ 2 0.90	+ 0 10.50
Δ ρ	.00	.00
p	— .10	+ 2.89

Astræa—Weisse III, 967.		
Sid. T. 1 26 8.87	— 4 33.60	— 6 7.18
Δ ρ	.00	— .14
p	— .11	+ 2.89

Corr. Chron. m. s. +2 20.03

	α h. m. s.	δ ° ′ ″
905, B. A. C.	2 48 13.03	+7 46 23.76

Astræa—905, B. A. C.	Δ α m. s.	Δ δ ′ ″
Sid. T. 1 53 45.49	— 0 8.26	+ 4 16.05
Δ ρ	.00	.10
p	— .09	+ 2.82

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Dec. 24	Astræa	32.1	44.0	56.2	1 40 44.10	3 30.468		
	929, B. A. C.	56.1	8.3	20.4	46 8.37	1 33.268	— 5 24.27	—57.264
	Astræa	19.1	31.5	43.5	59 31.37	3 30.608		
	929, B. A. C.	42.8	55.3	7.4	4 55.17	1 33.619	5 23.80	57.053
	Astræa		12.0	25.0	2 21 12.10	3 30.140		
	929, B. A. C.	24.0	37.1	49.3	26 36.80	1 33.221	— 5 24.70	—56.983
27	Astræa	34.0	46.1		5 35 46.45	2 45.291		
	929, B. A. C.	17.0	29.2	42.3	41 29.50	1 51.446	— 5 43.05	—23.996
	Astræa	18.5	30.3	43.0	46 30.60	2 45.420		
	929, B. A. C.	2.2	14.1	27.3	52 14.53	1 51.691	5 43.93	23.880
	Astræa	18.4		43.0	5 58 30.70	2 45.025		
	929, B. A. C.	2.7	15.8	28.1	6 4 15.53	1 51.448	5 44.83	23.728
	Astræa	30.9		56.0	7 43.45	2 44.969		
	929, B. A. C.	15.1	27.9	40.3	13 27.77	1 51.595	— 5 44.32	—23.525
31	Astræa	4.1	16.5	28.5	1 54 16.37	2 29.518		
	929, B. A. C.		58.5	11.5	59 58.37	3 24.179	— 5 42.60	+ 5.339
	Astræa	1.7	12.0	25.0	2 3 12.90	2 29.251		
	929, B. A. C.	42.7	55.2	7.2	8 55.03	2 53.886	5 42.13	5.365
	Astræa	13.5	25.5	38.0	18 25.66	2 26.925		
	929, B. A. C.	55.4	7.6	19.8	24 7.60	2 51.816	— 5 41.94	+ 5.109

RESULTS.

Corr. Chron. m. s. +2 30.96

	α h. m. s.	δ ° ′ ″
929, B. A. C.	2 51 41.08	+8 18 16.57

Astræa—929, B. A. C.		Δ α m. s.	Δ δ ′ ″
Sid. T.	2 3 0.15	— 5 24.26	—14 37.70
	Δ ρ	.00	— .33
	p	— .05	+ 2.68

Corr. Chron. m. s. +2 37.28

	α h. m. s.	δ ° ′ ″
929, B. A. C.	2 51 41.07	+8 18 16.02

Astræa—929, B. A. C.		Δ α m. s.	Δ δ ′ ″
Sid. T.	5 54 45.08	— 5 44.03	— 6 5.56
	Δ ρ	.00	— .18
	p	— .20	+ 2.80

Corr. Chron. m. s. +2 46.26

	α h. m. s.	δ ° ′ ″
929, B. A. C.	2 51 41.06	+8 18 15.27

Astræa—929, B. A. C.		Δ α m. s.	Δ δ ′ ″
Sid. T.	2 8 4.57	— 5 42.02	+ 1 21.02
	Δ	.00	.03
	p	— .05	+ 2.57

VESTA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star Δ α	Δ mic.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Dec. 31	2544, B. A. C. - -	51.0	4.0	17.9	6 15 4.30	1	33.862	+ 2 26.55	—60.992
	Vesta - - - - -		31.0	44.0	17 20.85	3	34.790		
	2544, B. A. C. - -	49.7	3.0	16.2	20 2.97	1	33.738	2 26.60	61.118
	Vesta - - - - -	16.4	29.2	43.1	22 29.57	3	34.792		
	2544, B. A. C. - -	38.6	51.5	5.2	23 51.77	1	33.752	2 26.16	60.930
	Vesta - - - - -	4.8	18.0	31.0	26 17.93	3	34.618		
	2544, B. A. C. - -	47.1	0.4	14.2	30 0.57	1	33.801	2 26.23	60.839
	Vesta - - - - -	13.3	26.8	40.3	32 26.80	3	34.576		
	2544, B. A. C. - -	57.7	11.2	24.0	34 10.97	1	33.610	2 25.96	60.825
	Vesta - - - - -	23.5	37.0	50.3	36 36.93	3	34.371		
	2544, B. A. C. - -	55.2	9.2	22.0	38 8.80	1	33.686	+ 2 26.27	—60.799
	Vesta - - - - -	21.8	35.3	48.1	40 35.07	3	34.421		

RESULTS.

Corr. Chron. m. s. + 2 47.12

	α h. m. s.	δ ° ′ ″
2544, B. A. C.	7 34 26.00	+ 22 44 51.58

Vesta—2544, B. A. C.		Δ α m. s.	Δ δ ′ ″
Sid. T.	h. m. s. 6 32 6.64	+ 2 26.29	— 15 36.37
		Δ ρ .00	— .28
		ρ — .08	+ 1.58

γ CEPHEI—FOR VALUE OF REVOLUTION OF MICROMETER.

1849.	Tr. over wire.	h. m. s.	2 — 1	3 — 2	3 — 1	
Oct. 11	1	22 46 59.2				
	2	48 14.4	2 15.2	2 14.1	4 29.3	
	3	50 28.5				
	1	51 47.4				
	2	54 2.6	2 15.2	2 14.8	4 30.0	
	3	56 17.4				
	1	23 5 31.9				
	2	7 46.1	2 14.2	2 15.4	4 29.6	
	3	10 1.5				
	1	11 41.1				
	2	13 56.2	2 15.1			
	3	(Lost.)				
	1	18 57.5				
	2	21 13.1	2 15.6	2 14.2	4 29.8	
	3	23 27.3				
	1	25 34.5				
	2	27 50.1	2 15.6	2 15.1	4.30.7	
	3	30 5.2				
	1	32 34.3				
	2	34 49.8	2 15.5			
	3	(Lost.)				
	1	37 57.1				
	2	40 12.9	2 15.8	2 13.8	4 29.6	
	3	42 26.7				
	1	44 29.2				
	2	46 45.1	2 15.9	2 14.5	4 30.4	
	3	48 59.6				
	1	50 42.9				
	2	52 58.2	2 15.3	2 14.7	4 30.0	
	3	55 12.9				
	1	56 47.5				
	2	59 2.3	2 14.8	2 14.2	4 29.0	
	3	0 1 16.5				
	1	2 52.3				
	2	5 8.1	2 15.8	2 14.7	4 30.5	
	3	7 22.8				
	1	9 51.1				
	2	12 6.4	2 15.3	2 14.6	4 29.9	m. s. ″
	3	14 21.0				Mean of 3 — 1. 4 29.82 = 4047.3
						Value of Rev. = 15.3868
	1	15 41.7				
	2	17 56.9	2 15.2	2 14.3	4 29.5	
	3	20 11.2				
	1	21 16.0				
	2	23 31.7	2 15.7	2 14.0	4 29.7	
	3	25 45.7				
	1	27 9.3				
	2	29 24.9	2 15.6	2 14.2	4 29.8	
	3	31 39.1				
	1	32 33.2				
	2	34 48.9	2 15.7	2 14.2	4 29.9	
	3	37 3.1				
	1	38 12.7				
	2	40 27.5	2 14.8	2 14.6	4 29.4	
	3	42 42.1				

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Nov. 2	B. Z, 348, 84 . .	38.1	51.3	4.8	4 1 51.40	2 33.730	+ 7 2.93	— 0.052	
	(° 9, 10)	5.7	19.2			2 31.671	4.76		
	(° 9)	49.0				2 32.713			
	Mars, S. P. . . .	41.0	54.0	8.0	8 54.33	2 33.782			
	Mars, S. F. . . .	43.0	56.0	9.5	8 56.16				
	B. Z., 348, 84 . .	35.0	48.5	1.5	18 48.33	2 33.769	7 3.50	+ 1.353	
	(° 9, 10)	3.2	16.5			2 31.760	5.25		
	(° 9)	47.3		13.5		2 32.567			
	Mars, N. P. . . .		52.0	5.0	25 51.83	2 32.416			
	Mars, F. . . .		53.5	7.0	25 53.58				
	B. Z., 348, 79 . .	4.7	18.3	31.5	33 18.17	2 25.652			Corr. Chron. m. s. 0 43.81 .82
	B. Z, 348, 84 . .	3.2		31.0	36 17.10	2 33.919	7 3.90	0.281	
	(° 9, 10)		45.0	58.0		2 31.608	5.80		
	(° 9)		28.0			2 32.527			
	Mars, S. P. . . .	7.0	21.0	35.0	43 21.00	2 33.638			α h. m. s. δ ° ′ ″
	Mars, F.	9.2	23.0	36.5	43 22.90				B. Z., 348, 84 6 18 47.82 + 24 20 23.15
	B. Z., 348, 84 . .	54.2	8.1	21.0	5 3 7.79	2 33.761	7 3.88	+ 1.692	Mars—B. Z., 348, 4. Δ α Δ δ
	(° 9, 10)	21.8	35.4	49.1		2 31.551	5.94		h. m. s. m. s.
	(° 9)	6.0	19.2			2 32.541			Sid. T. 5 10 35.0 + 7 6.31
	Mars, N. P. . . .	58.0	12.0	25.0	10 11.67	2 32.069			Δ ρ .00
	Mars, F.	1.1	13.1	27.0	10 13.73				p — .22
	B. Z., 348, 84 . .	30.2	43.1	57.0	29 43.43	2 33.858	7 4.00	— 0.131	5 20 44.34 + 0 15.41
	(° 9, 10)	58.3	11.0	24.8		2 31.599	5.77		Δ ρ .00
	(° 9)	40.8	54.7			2 32.502			p + 3.16
	Mars, S. P. . . .	34.0	47.3	1.0	36 47.43	2 33.989			The night misty; planet blurred and indistinct—A. 6.
	Mars, F.	36.2	49.1	2.3	36 49.20				
	B. Z, 348, 84 . .	53.7		20.5	47 7.10	2 29.272	7 4.83	+ 1.997	I °
	(° 9, 10)	22.1		48.0		2 27.245	6.20		Bar. 30.092 Therm.—At. 50.2
	(° 9)	5.6	19.2			2 28.170			Int. 50.2
	Mars, N. P. . . .	58.0	12.1	25.7	54 11.93	2 27.275			Ex. 43.6
	Mars, F.	0.2	13.5	26.2	54 13.30				
	B. Z., 348, 84 . .	15.6	29.2	42.3	6 2 29.03	2 29.279			
	(° 9, 10)	44.1	56.7	10.1		2 27.056	+ 7 4.75	+ 0.821	
	(° 9)	27.1	41.0	54.0		2 27.849	6.85		
	Mars, S. P. . . .		34.0	47.0	9 33.78	2 28.458			
	Mars, F.		36.2	49.0	9 35.88				
Nov. 4	(° 9)	49.5	3.0	16.5		2 42.558			
	(° 9)		49.0	3.0		2 46.082			
	Mars, P.		34.2	47.0	3 44 33.85				
	Mars, S. F. . . .		35.2	48.2	44 35.05	2 42.100			
	B. Z., 348, 94 . .		31.0			1 43.848			
	B. Z., 348, 95 . .			17.0	46 3.85	1 50.492	— 1 28.80	—21.759	
							30.00		
	(° 9)			3.5		2 48.086			
	(° 9)	42.5	56.2	9.5		2 42.581			
	(° 9)			56.2		2 46.179			
	Mars, P.			40.0	3 56 26.55				
	Mars, N. P. . . .			42.5	56 28.05	2 40.690			
	B. Z., 348, 94 . .			37.5		1 43.431			
	B. Z., 348, 95 . .			10.5	57 57.05	1 50.544	— 1 29.00	—20.297	
							30.50		

(Continued.)

MARS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
v. 4	(° 9)	42.3	56.1	9.5		2 42.528			
	(° 9)	29.1	42.5	56.5		2 46.066			
	Mars, S. P. . . .	12.3	26.0	40.0	4 7 26.19	2 42.068			
	Mars, N. F. . . .		28.2	41.8	7 28.10	2 40.562			
	B. Z., 348, 94 . .	10.1	24.3	37.7		1 43.730			
	B. Z., 348, 95 . .		55.5	9.5	8 55.60	1 50.411	— 1 27.50	— 21.808	
							29.50	— 20.302	
	(° 9)	55.2	9.2	22.2		2 42.600			
	(° 9)	42.1	56.0	9.2		2 46.235			
	Mars, S. P. . . .	26.0	39.7	53.2	18 39.63	2 42.092			
	Mars, N. F. . . .	27.9	41.5	54.7	18 41.37	2 40.551			
	B. Z., 348,94 . .	23.2	37.0	51.2		1 45.725			
	B. Z., 348,95 . .		8.5	22.1	20 8.55	1 50.498	— 1 27.18	— 21.745	
							28.92	— 20.204	
	(° 9)	27.2	41.2	54.5		2 46.021			
	Mars, S. P. . .	11.0	25.2	38.2	4 36 24.80	2 41.777			
	Mars, N. F. . . .	12.3	27.0	39.7	36 26.33	2 40.253			
	B. Z., 348,94 . .	8.2	22.0	35.6		1 43.612			
	B. Z., 348,95 . .		54.2	7.6	37 54.03	1 50.219	— 1 27.70	— 21.709	
							29.28	— 20.185	
	(° 9)	2.5	16.0	30.0		2 46.038			
	Mars, S. P. . . .	46.2	1.0	13.2	4 43 59.70	2 41.760			
	Mars, N. F. . . .	48.1	3.5	15.1	44 1.60	2 40.350			
	B. Z., 348,94 . .	43.2	57.6	10.5		1 43.701			
	B. Z., 348,95 . .		29.2	42.7	45 29.00	1 50.252	— 1 27.40	— 21.659	Corr. Chron. + 0 s. 49.40
							29.30	— 20.249	.46
	(° 9)	35.2	48.5	2.5		2 45.965			
	Mars, S. P. . . .	19.2	34.2	46.2	4 53 32.70	2 41.490			
	Mars, N. F. . . .					2 40.208			
	B. Z., 348,94 . .	16.2	29.5	43.2		1 43.551			α δ
	B. Z., 348,95 . .		1.5	15.0	55 1.53	1 50.290	— 1 28.83	— 21.351	h. m. s. ° ′ ″
								— 20.069	B. Z., 348,95 6 27 55.72 + 24 30 55.94
	(° 9)	12.5	26.0	39.5		2 45.931			
	Mars, S. P. . . .	57.1	11.3	23.5	5 3 10.30	2 41.290			
	Mars, N. F. . . .					2 40.105			
	B. Z., 348,94 . .	54.2	7.2	20.5		1 43.460			
	B. Z., 348,95 . .		39.2	52.3	4 39.20	1 50.266	— 1 28.90	— 21.175	Mars — B. Z., 348,95 Δα Δδ
								— 19.991	h. m. s. m. s. ′ ″
									Sid. T. 4 15 24.50 — 1 28.75 — 5 22.68
	(° 9)	45.5	58.5	12.0		2 46.122			Δρ .00 — 0.10
	Mars, S. P. . . .	29.5	44.2	57.2	5 15 43.35	2 41.550			p — .37 + 3.67
	Mars, N.					2 40.263			
	B. Z., 348,94 . .	27.1	40.3	54.1		1 43.680			
	B. Z., 348,95 . .		12.3	25.7	17 12.30	1 50.441	— 1 28.95	— 21.260	
								— 19.973	
	(° 9)	2.5	16.1	29.3		2 46.220			Mars P. and centre — B. Z., 348,95.
	Mars, S. P. . . .	47.2	1.9	14.0	5 25 0.60	2 41.300			
	Mars, N.					2 40.209			
	B. Z., 348,94 . .			1.5		1 43.886			h. m. s. m. s. ′ ″
	B. Z , 348,95 . .		29.5	43.1	25 29.63	1 50.472	— 1 29.03	— 20.979	Sid. T. 5 24 24.48 — 1 28.66 — 5 14.81
								— 19.888	Δ ρ .00 — .09
									p — .19 + 3.20
	(° 9)	6.2	19.5	33.7		2 46.370			Semi-diam. + .47
	Mars, S. P. . . .	51.0	5.3	17.3	5 34 4.15	2 41.608			
	Mars, N.					2 40.479			
	B. Z , 348,94 . .	47.2	1.3	14.3		1 44.015			
	B. Z., 348,95 . .		32.5	46.2	35 32.48	1 50.728	— 1 28.33	— 21.031	
								— 19.902	In. °
	(° 9)	8.5	21.5	35.1		2 46.361			Bar. 30.176 Ther. At. 60.0
	Mars, S. P. . . .	53.1	7.2	19.2	5 41 6.15	2 41.484			Ex. 59.0
	Mars, N					2 40.232			Int. 54.3 A. 5.
	B. Z., 348,94 . .	49.2	3.5	16.0		1 43.941			
	B. Z., 348,95 . .		35.2	48.0	42 34.75	1 50.662	— 1 28.60	— 20.973	
								— 19.721	

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean Sid. T.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Nov. 12	12557, Lalande - -	36.2	50.3	3.1	5 24 49.87	2 45.395	+ 0 31.73	+ 13.310	
	Mars, S. P. - - - -	8.0	23.1	35.2	25 21.60	2 32.055		15.082	
	Mars, N. - - - -					2 30.313			
	12557, Lalande - -	59.4	13.2	26.1	32 12.90	2 45.270	0 31.45	13.408	
		30.7	16.2	58.0	32 44.35	2 31.862		15.039	Corr. Chron. m. s. + 1 5.12
	Mars, S. P. - - - -					2 30.231			5.24
	Mars, N. - - - -								
	12557, Lalande - -	6.1	20.0	33.3	38 19.80	2 46.407	0 31.89	13.656	α h. m. s. δ ° ′ ″
	Mars, S. P. - - - -		51.0	5.0	38 49.05	2 32.751		15.092	12557, Lalande, — 6 25 50.34 +24 44 37.76
	Mars, N. F. - - -		53.2	6.2	38 51.69	2 31.315			
	12557, Lalande - -	58.2	11.4	25.1	57 11.57	2 45.608	0 30.58	13.656	Mars. P. and centre—12557, Lalande,
	Mars, S. P. - - -		44.1	56.2	57 42.15	2 31.952		15.508	Δ α Δ δ
	Mars, N. - - - -					2 30.100			h. m. s. s. ′ ″
									Sid. T. 4 40 50.53 +0 32.39 +3 34.03
									Δ ρ .00 .06
									p — .32 + 3.63
									Semi-diam., + .50
	12557, Lalande - -	3.3	16.2	29.1	6 1 16.20	2 45.692	0 30.95	13.766	h. m. s. s. ′ ″
	Mars, S. P. - - - -		19.1	0.8	1 47.15	2 31.932		15.524	6 8 45.56 +0 31.26 +3 45.67
	Mars, N. - - - -					2 30.178			Δ ρ .00 .06
									p — .06 + 3.17
									Semi-diam., + .50
	12557, Lalande - -	10.0	53.3	7.0	7 53.43	2 45.652	0 31.42	13.765	In. °
	Mars, S. P. - - - -	11.0	27.0	38.7	8 24.85	2 31.887		15.461	Bar. 30.094 Ther. At. 74.0
	Mars, N. - - - -					2 30.191			Int. 47.0
									Ex. 44.0 A. 10.
	12557, Lalande - -	39.1	52.7	6.0	15 52.60	2 45.731	0 31.30	13.961	
	Mars, S. P. - - - -	11.0	25.6	36.8	16 23.90	2 31.770		15.679	
	Mars, N. - - - -					2 30.652			
	12557, Lalande - -	10.1	23.5		42 23.41	2 46.389	0 31.41	14.348	Night very fine. Low mist and very heavy dew. The position of the observer after the last comparison was so confined and cramped as to render observations altogether unsatisfactory.
	Mars, S. P. - - - -	41.2	56.5	08.0	42 54.85	2 32.041		15.769	
	Mars, N. - - - -					2 30.620			
13	12557, Lalande - -	39.3	53.1	6.0	3 11 52.80	3 33.752	0 16.70	24.532	
	Mars, S. P. - - -	56.0	11.2	23.0	15 9.50	2 39.133		25.956	
	Mars, N. - - - -					2 37.709			
	12557, Lalande - -	18.1	31.0	45.0	19 31.37	3 33.565	0 16.73	24.449	
	Mars, S. P. - - -	35.0	49.0	1.2	19 48.10	2 39.029		25.863	
	Mars, N. - - - -					2 37.615			
	12557, Lalande - -	53.0	5.1		23 5.10	3 33.620	0 16.10	24.574	
	Mars, S. P. - - -	8.3	23.0	34.1	23 21.20	2 38.959		25.918	
	Mars, N. - - - -					2 37.615			
	12557, Lalande - -	24.8	38.0	51.7	29 37.90	3 36.782	0 16.00	24.604	
	Mars, S. P. - - -	40.0	56.0	7.8	29 53.90	2 42.091		26.009	
	Mars, N. - - - -					2 40.686			
	12557, Lalande - -	14.9	28.5	42.0	32 28.47	3 36.788	0 15.98	24.490	
	Mars, S. P. - - -	31.2	46.0	57.7	32 44.45	2 42.211		25.991	
	Mars, N. - - - -					2 40.710			
	12557, Lalande - -	33.0	46.5	0.5	36 46.67	3 36.802	+ 0 15.98	24.565	
	Mars, S. P. - - -	49.1		16.2	37 2.65	2 42.150		+ 25.989	
	Mars, N. - - - -					2 40.726			

MARS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
849. v. 13	12557, Lalande - -	4.2	17.7	31.0	40 17.63	3 36.875	+ 0 16.10	+ 24.799	
	Mars, S. P. - - -		35.2	47.1	40 33.73	2 41.989		26.276	
	Mars, N. - - - -					2 40.512			
	12557, Lalande - -	58.5	12.0	25.2	43 11.90	3 36.862	0 16.45	24.625	
	Mars, S. P. - - -	15.0	29.7	41.7	43 28.35	2 42.150		26.079	
	Mars, N. - - - -					2 40.696			
	12557, Lalande - -	19.7	33.1	47.0	45 33.27	3 36.902	0 15.68		
	Mars, P. - - - -	35.0	51.0	2.9	45 48.95	(lost.)			
	Mars, N. - - - -					2 40.387			
	12557, Lalande - -	35.2	49.1	2.3	50 48.87	3 36.802	0 15.63	24.645	
	Mars, S. P. - - -	51.0	6.5	18.0	51 4.50	2 42.070		26.370	
	Mars, N. - - - -					2 40.345			
	12557, Lalande - -	45.1	58.5	10.3	59 57.97	3 36.928			
	Mars, S. P. - - -	3.1		28.2	4 0 15.65	2 41.905			
	Mars, N. - - - -					2 40.486			
	12557, Lalande - -	24.3	37.5	51.0	7 37.60	3 36.826	0 15.90	24.970	
	Mars, S. P. - - -		55.1	6.9	7 53.50	2 41.769		26.343	
	Mars, N. - - - -					2 40.396			
	12557, Lalande - -	14.2	28.0	41.0	11 27.73	3 36.925	0 15.87	25.099	
	Mars, S. P. - - -	30.2	45.3	57.0	11 43.60	2 41.739		26.562	
	Mars, N. - - - -					2 40.276			
	12557, Lalande - -	47.3	1.0	14.3	18 0.87	3 36.975	0 15.33	25.127	
	Mars, S. P. - - -	3.2	18.1	29.2	18 16.20	2 41.761		26.402	
	Mars, N. - - - -					2 40.486			
	12557, Lalande - -	55.1	8.5	21.7	21 8.43	3 37.075	0 15.07		
	Mars, P. - - - -	10.0		37.0	21 23.50	(lost.)			
	Mars, N. - - - -					3 40.401			
	12557, Lalande - -	39.2	52.1	6.0	42 52.37	3 37.011	0 15.38	25.346	
	Mars, S. P. - - -	54.0	9.3	21.5	43 7.75	2 41.578		26.649	
	Mars, N. - - - -					2 40.275			
	12557, Lalande - -	31.3	45.0	58.1	47 44.80	3 36.950	0 14.80	25.425	
	Mars, S. P. - - -	46.2	1.9	13.0	47 59.60	2 41.438		26.657	
	Mars, N. - - - -					2 40.206			
	12557, Lalande - -	28.1	41.0	55.0	52 41.37	3 36.895	+ 0 15.13	+ 25.261	
	Mars, S. P. - - -	43.0	58.2	10.0	52 56.50	2 41.547		26.575	
	Mars, N. - - - -					2 40.233			
. 20	B. Z, 523,110 . .		18.2		3 46 18.2	2 38.258	+ 1 10.8	+ 0.097	
	Mars, N. P. . . .		29.0		47 29.0	2 38.161	12.1		
	Mars, F.		30.3		47 30.3				
	B. Z., 523,110 . .		41.8		3 50 41.8	2 38.297	1 10.2	+ 0.148	
	Mars, N. P. . . .		52.0		51 52.0	2 38.149	+ 11.8		
	Mars, F.		53.6		51 53.6				

Corr. Chron. m. s. + 1 6.96

12557, Lalande, h. m. s. 6 25 50.37 ° ′ ″ + 24 44 37.38

Mars P. & centre—12557, Lalande,

	h. m. s.	Δ α s.	Δ δ ′ ″
Sid. T.	3 56 47.19	+ 0 15.87	+ 6 32.56
	Δ ρ	.00	.12
	p —	.46	+ 4.09
	Semi-d. +	.50	

Bar. - - In. 30.12 Ther. At ° 60.0 Ex. 55.5

Very fine night.—A. 10.

Bar. In. 29.78 Ther. At ° 57.8 Ex. 58.4

Wind too high, and soon overclouded. A. 7.

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ Mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1849. Nov. 24	B. Z., 523, 106 . .	25.1	39.1		3 48 39.00	2 42.070	+ 0 39.10	+ 1.894
	Mars, S. P. . . .	4.0		32.2	49 18.10	2 40.179		
	(° 9)	27.0	40.8	55.0	50 40.93	2 53.543		
	B. Z., 523, 106 . .	43.1	57.0		54 56.90	2 42.019	0 39.00	2.920
	Mars, P.		36.0	49.0	55 35.90			
	Mars, N. F. . . .		37.5	51.0	55 37.40	2 39.099		
	(° 9)	45.2	59.2	12.7	56 59.03	2 53.511		
	B. Z , 523, 106 . .	0.7	14.1		4 1 14.00	2 42.100	0 39.60	1.918
	Mars, S. P. . . .	40.0	55.1	7.2	1 53.60	2 40.182		
	(° 9)	2.0	16.0	30.0	3 16.00	2 53.775		
	B. Z., 523, 106 . .	47.5	1.0		8 0.90	2 42.205	0 39.00	1.983
	Mars, P.		40.0	54.0	8 39.90			
	Mars, S. F. . . .		41.5	55.5	8 41.40	2 40.222		
		50.3	3.8	17.0	10 3.70	2 53.759		
	B. Z., 523, 106 . .	15.2	29.0		12 28.90	2 42.222	(Omitted in mean.)	3.352
	Mars, P.		7.0	21.0	13 6.90			
	Mars, N. F. . . .		9.2	23.0	13 9.10	2 38.870		
	(° 9)	18.2	31.0	44.7	14 31.30	2 53.772		
	B. Z., 523, 106 . .	33.2	45.8		19 45.70	2 42.251	(Omitted.)	1.990
	Mars, P.		24.0	38.0	20 23.90			
	Mars, S. F. . . .		26.2	39.2	20 26.10	2 40.261		
	(° 9)	34.2	49.1	2.3	21 48.53	2 53.741		
	B. Z. 523, 106 . .	35.1	48.0		23 47.90	2 42.114	0 38.75	3.343
	Mars, N. P. . . .	13.0	28.0	40.3	24 26.65	2 38.771		
	(° 9)	36.8	51.3	4.0	25 50.70	(Lost.)		
	B. Z., 523, 106 . .	56.1	10.2		48 10.10	2 42.225	0 36.80	3.745
	Mars, N. P. . . .	33.0	49.1	0.8	48 46.90	2 38.480		
	(° 9)	59.3	13.1	26.2	50 12.87	(Lost.)		
	B. Z , 523, 106 . .	15.1	29.1		55 29.00	2 42.220	+ 0 36.30	3.676
	Mars, N. P. . . .	51.4	6.5	19.2	57 5.30	2 38.544		
	(° 9)	18.2	31.1	44.8	58 31.37	2 53.663		
	(° 9)			14.0	59 0.65	1 56.537		
	B. Z., 523, 111 . .		06.2		59 6.10	1 57.173	— 2 0.80	
	B. Z., 523, 106 . .	45.1	58.4	12.0	5 32 58.50	2 43.740	+ 0 34.55	+ 2.739
	Mars, S. P. . . .	19.2	34.3	46.9	33 33.05	2 41.001		
	(° 9)	48.3		15.1	35 1.70	2 55.372		
	(° 9)		30.4	44.7	35 30.30	1 58.131		
	B. Z., 523, 111 . .	22.3	36.0	49.1	35 35.80	1 58.910	— 2 2.75	
Nov. 26	Mars, S. P. . . .	17.2	32.1	44.0	3 34 30.60	2 37.001		
	Mars, N.					2 35.379		
	Lalande, 12237 . .	34.0	48.0	01.2	34 47.73	2 33.691	— 0 17.13	— 3.310
								1.688
	Mars, S. P. . . .	31.1	46.1	58.0	37 44.55	2 37.040		
	Mars, N.					2 35.290		
	Lalande, 12237 . .	48.0		15.2	38 01.60	2 33.589	0 17.05	3.451
								1.701
	Mars, S. P. . . .	40.1	55.0	07.0	42 53.55	2 36.741		
	Mars, N.					2 35.078		
	Lalande, 12237 . .	57.1	10.0	24.2	43 10.43	2 33.490	0 16.88	3.251
								1.588
	Mars, S. P. . . .	10.0	25.2	37.2	46 23.60	2 36.449		
	Mars, N.					2 35.038		
	Lalande, 12237 . .			54.2	46 40.69	2 33.502	0 17.09	2.947
								1.536

RESULTS.

m. s.
Corr. Chron. + 1 27.40

	α h. m. s.	δ ° ′ ″
B. Z. 523, 106	6 18 3.08	+25 27 14.05

Mars P.—B. Z. 523, 106

	h. m. s.	Δ α s.	Δ δ
Sid. T.	4 28 52.32	+ 0 37.89	
	Δ ρ	.00	
	ρ	— .37	
	Semi-d.	+ .54	

Mars S.—B. Z. 523, 106

	h. m. s.	′ ″
Sid. T.	4 24 13.11	+ 0 32.34
	Δ ρ	.00
	ρ	3.75
	Semi-d.	+ 7.20

Mars N.—B. Z. 523, 106

	h. m. s.	′ ″
Sid. T.	4 29 15.73	+ 0 52.37
	Δ ρ	.00
	ρ	+ 3.74
	Semi-d.	— 7.20

In. °
Bar. 30.054 Ther. At 70.
Ex. 54. A. 8.

Clouds prevented further observations. The star B. Z , 523, 106, was used in these comparisons instead of B. Z, 523, 111, it being more distinctly seen. The other star (111) was intended to have been used in continuing the observations had the weather permitted.

MARS.

	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. a	mic.	RESULTS.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
26	Mars, S. P.	4.8	18.2	31.0	3 48 17.90	2 36.290			
	Mars, N.					2 35.022			
	Lalande, 12237 . .		36.0	49.2	48 35.69	2 33.509	— 0 17.79	— 2.781	
								— 1.513	
	Mars, S. P.	20.2	35.2	47.3	55 33.75	2 36.622			
	Mars, N.					2 34.789			
	Lalande, 12237 . .	38.5	52.0	5.1	55 51.87	2 33.666	0 18.12	2.956	
								1.123	
	Mars, S. P.	12.1	28.2	39.5	4 2 25.80	2 36.455			
	Mars, N.					2 34.913			
	Lalande, 12237 . .	30.1		58.1	2 44.10	2 33.599	0 18.30	2.856	
								1.314	
	Mars, S. P.	28.0	43.1	55.0	5 41.50	2 36.339			
	Mars, N.					2 34.858			
	Lalande, 12237 . .	46.0	59.3	13.2	5 59.50	2 33.631	0 18.00	2.708	
								1.227	
	Mars, S. P.	43.2	59.1		10 56.71	2 36.335			
	Mars, N.					2 34.787			
	Lalande, 12237 . .	2.5		30.1	11 16.30	2 33.438	0 19.59	2.897	
								1.349	
	Mars, S. P.	18.2	34.0	45.5	14 31.85	2 36.518			
	Mars, N.					2 34.740			
	Lalande, 12237 . .	37.2		4.8	14 51.00	2 33.487	0 19.15	3.031	
								1.253	
	Mars, S. P.	13.4	29.1	41.0	18 27.20	2 36.270			
	Mars, N.					2 34.638	(Omitted in mean.)		
	Lalande, 12237 . .		46.0		18 46.00	2 33.536		2.734	
								1.102	
	Mars, S. P.	10.2	26.2	37.1	21 23.65	2 36.139			
	Mars, N.					2 34.712			
	Lalande, 12237 . .	29.1	43.0	57.2	21 43.10	2 33.476	0 19.45	2.663	
								1.236	
	Mars, S. P.	20.0	36.1	47.9	24 33.95	2 36.086			
	Mars, N.					2 34.651			
	Lalande, 12237 . .	40.3	53.6	7.0	24 53.63	2 33.525	0 19.68	2.561	
								1.126	
	Mars, S. P.	31.2	46.3	58.3	27 44.75	2 36.071			
	Mars, N.					2 34.570			
	Lalande, 12237 . .		4.0	18.2	28 4.00	2 33.490	0 19.25	2.581	
								1.080	
	Mars, S. P.	14.1	29.2	41.0	31 27.55	2 36.170			
	Mars, N.					2 34.557			
	Lalande, 12237 . .	34.3	47.3	1.0	31 47.53	2 33.493	0 19.98	2.677	
								1.064	
	Mars, S. P.	17.2	31.5	44.2	35 30.70	2 35.985			
	Mars, N.					2 34.637			
	Lalande, 12237 . .	37.0	50.5	3.5	35 50.33	2 33.481	0 19.63	2.504	
								1.156	
	Mars, S. P.	30.3	45.4		40 43.81	2 35.970			
	Mars, N.					2 34.707			
	Lalande, 12237 . .	50.3	4.1	17.7	41 4.05	2 33.540	0 20.24	2.430	
								1.167	
	Mars, S. P.	11.1			43 24.61	2 35.873			
	Mars, N.					2 34.569			
	Lalande, 12237 . .	31.3	45.0	58.2	43 44.83	2 33.483	0 20.22	— 2.390	
								— 1.086	

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
1849. Nov. 26	Mars, S. P. . . .	13.2	28.1		4 46 26.71	2 35.798			
	Mars, N.					2 34.430			
	Lalande, 12237 . .	33.2			46 46.60	2 33.468	— 0 19.89	— 2.330	
								— 0.962	
	Mars, S. P. . . .	30.3	45.5	58.0	5 3 44.15	2 35.667			
	Mars, N.					2 34.350			
	Lalande, 12237 . .	51.0	5.3	19.0	4 5.10	2 33.565	0 20.95	2.102	
								0.785	
	Mars, S. P. . . .	19.2	34.0	46.1	11 32.65	2 35.298			
	Mars, N.					2 33.975			
	Lalande, 12237 . .	40.2	53.8	7.7	11 53.90	2 33.218	0 21.25	2.080	
								0.757	
	Mars, S. P. . . .	9.9	25.2	37.2	14 23.55	2 35.233			
	Mars, N.					2 33.941			
	Lalande, 12237 . .	31.3	45.3	59.7	14 45.43	2 33.205	0 21.88	2.028	
								0.736	
	Mars, S. P. . . .	15.2	30.1	42.2	17 28.70	2 35.219			
	Mars, N.					2 33.782			
	Lalande, 12237 . .	37.0	50.7	4.2	17 50.63	2 33.243	0 21.93	1.976	
								0.539	
	Mars, S. P. . . .	25.2	40.9		20 38.71	2 35.071			
	Mars, N.					2 33.968			
	Lalande, 12237 . .	48.0	1.3	14.6	21 1.30	2 33.289	(Omitted.)	1.782	
								0.679	
	Mars, S. P. . . .	38.0	53.1		23 51.54	2 35.149			
	Mars, N.					2 33.932			
	Lalande, 12237 . .	59.2	13.7	27.0	24 13.30	2 33.357	0 21.76	1.795	
								0.575	
	Mars, S. P. . . .	35.2	50.1		40 48.74	2 34.302			
	Mars, N.					2 33.072			
	Lalande, 12237 . .	58.5	12.1	25.4	41 12.00	2 32.781	0 23.26	1.521	
								0.291	
	Mars, S. P. . . .	25.8	41.0		45 38.34	2 34.229			
	Mars, N.					2 33.011			
	Lalande, 12237 . .	49.0	3.1	16.4	46 2.83	2 32.559	0 24.49	1.670	
								0.452	
	Mars, S. P. . . .	30.8	46.1		49 44.34	2 34.160			
	Mars, N.					2 32.881			
	Lalande, 12237 . .	54.8	8.1	21.8	50 8.23	2 32.580	0 23.89	1.580	
								0.301	
	Mars, S. P. . . .		15.2	27.0	55 13.50	2 24.130			
	Mars, N.					2 32.790			
	Lalande, 12237 . .	24.0		51.1	55 37.55	2 32.580	0 24.05	1.550	
								0.210	
	Mars, S. P. . . .	32.1	47.2		58 45.65	2 32.119			
	Mars, N.					2 30.780			
	Lalande, 12237 . .	56.1	9.3	23.1	59 9.50	2 30.810	0 23.85	— 1.309	
								+ 0.030	
	Mars, S. P. . . .	10.1	25.3		6 1 23.64	2 32.232			
	Mars, N.					2 30.671			
	Lalande, 12237 . .	34.0	47.0		1 47.54	2 30.548	0 23.90	— 1.684	
								— 0.123	
	Mars, S. P. . . .	6.1	22.0		5 19.64	2 32.058			
	Mars, N.					2 30.591			
	Lalande, 12237 . .	31.0	45.0	58.3	5 44.77	2 30.462	0 25.13	— 1.596	
								— 0.129	

MARS.

E.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
9.		s.	s.	s.	h. m. s.	w. revss	m. s.	revs.	
26	Mars, S. P.	40.8	56.1		6 43 54.33	2 44.255			
	Mars, N.					2 43.040			
	Lalande, 12237 . .	7.1	20.3	34.1	44 20.50	2 43.191	— 0 26.17	— 1.064	
								+ 0.151	
									m. s.
	Mars, S. P.	45.2	0.3		48 58.73	2 44.300			Corr. Chron. + 1 32.34
	Mars, N.					2 42.940			.34
	Lalande, 12237 . .	12.3	26.1	39.3	49 25.90	2 43.185	0 27.17	— 1 115	.55
								+ 0.245	
									α δ
	Mars. S. P.	26.8	41.5		52 40.33	2 44.348			h. m. s. ° ′ ″
	Mars, N.					2 42.855			12237, Lalande, 6 16 50.74 +25 35 14.36
	Lalande, 12237 . .	53.2	7.0	20.3	53 6.83	2 43.211	0 26.50	— 1.137	
								+ 0.356	Mars P.—12237, Lalande, Δ α Δ δ
									h. m. s. m. s.
	Mars, S. P.	3.0	18.1		57 16.53	2 44.170			Sid. T. 4 39 3.49 — 0 20.02
	Mars, N.					2 42.841			Δ ρ .00
	Lalande, 12237 . .	29.5	43.0	57.0	58 43 16	2 43.141	0 26.63	— 1.029	p — .34
								+ 0.300	Semi-d. + .54
	Mars, S. P.	6.2	21.0		7 1 19.73	2 44.195			
	Mars, N.					2 42.757			Mars, centre—12237, Lalande.
	Lalande, 12237 . .	33.0	46.1	0.0	1 46.37	2 43.262	0 26.64	— 0.933	h. m. s. ″
								+ 0.505	Sid. T. 4 37 49.12 — 0 26.70
									Δ ρ .00
	Mars, S. P.	26.1	41.3		5 39.63	2 44.380			p + 3.66
	Mars, N.					2 42.642			
	Lalande, 12237 . .	53.6	7.1	21.0	6 7.23	2 43.230	0 27.60	— 1.150	Mars P. & centre.—12237, Lalande.
								+ 0.588	
									h. m. s. ″
	Mars, S P.	10.7	26.2		9 24.23	2 44.278			Sid T. 6 45 26.33 — 0 26.32 — 0 6.86
	Mars, N.					2 42.768			Δ ρ .00 .00
	Lalande, 12237 . .	39.2	52.6	6.0	9 52.60	2 43.282	0 27.37	— 0.996	p + .11 + 3.28
								+ 0.514	Semi-d. + .54
	Mars, S. P.	55.4	11.1		18 8.93	2 44.240			
	Mars, N.					2 42.585			Ther. Ex. 49°.5
	Lalande, 12237 . .	24.0	37.5		18 37.53	2 43.329	— 0 28.60	— 0.911	Planet blurred, and star faint and unsteady.—A. 7.
								+ 0.744	
27	Mars, S. P.	38.1	53.2	5.0	3 40 51.55	2 35.663			
	Mars, N.					2 33.781			Ther. Ex. 43°.5.—A. 7.
	(9 ♀)	5.2	18.0	32.0	42 18.40	2 45.700			
	Mars, S. P.	16.5	31.0	43.2	4 2 29.85	2 35.442			Planet blurred and unsteady; impossible to make comparisons within a revolution of micrometer.
	Mars, N.					2 33.851			
	(♂)	43.0	57.0		3 57.03	2 45.639			
	12240, Lalande . .	49.0	3.0	17.1	4 3.03	2 24.730	— 1 33.18	— 10.712	
								— 9.121	
6	Lalande, 11714 . .	57.1	11.0	25.0	3 35 11.03	2 33.550	+ 0 17.97	+ 19.991	
	Mars, S. P. . . .	15.2	30.7	42.8	35 29.00	1 43.710			
	Lalande, 11714 . .	46.2	59.5	13.1	45 59.60	2 33.739	0 17.85	21.448	
	Mars, N. P. . . .	4.1	19.2	30.8	46 17.45	1 42.442			
	Lalande, 11684 . .	48.1	1.3	15.1	49 1.50	2 27.273	1 8.90	14.814	
	Lalande, 11714 . .	39.2	53.0		49 53.07	2 33.710	0 17.33	20.251	
	Mars, S. P. . . .	57.0	12.1	23.8	50 10.40	1 43.610			
	Lalande, 11684 . .	1.0	15.0	28.4	55 14.80	2 27.355	1 8.90	15.233	
	Lalande, 11714 . .	53.1	7.0	20.2	56 6.76	2 33.550	0 16.94	21.428	
	Mars, N. P. . . .	10.2	25.1	37.2	56 23.70	1 42.273			
	Lalande, 11684 . .	33.2	47.1	0.1	59 46.80	2 27.353	1 7.70	13.907	
	Lalande, 11714 . .	24.6	38.0	52.0	4 0 38.29	2 33.593	+ 0 16.3	+ 20.147	
	Mars, S. P. . . .	41.0		8.0	0 54.50	1 43.597			

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s	s.	h. m. s.	w. revs.	m. s.	revs.
1849. Dec. 6	Lalande, 11684 - -	32.5	46.0	59.7	4 4 46.07	2 27.331	+ 1 7.43	+ 16.391
	Lalande, 11714 - -	24.2	38.0	51.0	5 37.73	2 33.583	0 15.77	21.643
	Mars, N. P. - - -	40.0	55.7	7.0	5 53.50	1 42.091		
	Lalande, 11684 - -	24.2	38.1	52.0	10 38.10	2 27.530	1 6.40	14.066
	Lalande, 11714 - -	15.0	29.0	42.0	11 28.66	2 33.650	0 15.84	20.186
	Mars, S. P. - - -	31.0	46.1	58.0	11 44.50	1 43.615		
	Lalande, 11684 - -	54.1	8.1	22.0	29 8.07	2 27.572	1 5.88	14.344
	Lalande, 11714 - -	46.2	59.0	13.0	29 59.40	2 33.559	0 14.55	20.331
	Mars, S. P. - - -		15.2	27.9	30 13.95	1 43.379		
	Lalande, 11684 - -	17.1	31.0	44.0	33 30.70	2 27.490	1 5.85	15.716
	Lalande, 11714 - -	8.9	22.0	36.0	34 22.30	2 33.598	0 14.25	21.824
	Mars, N. P. - - -	23.1	38.3	50.0	34 36.55	2 41.925		
	Lalande, 11684 - -	19.2	33.0	46.5	40 32.90	2 27.358	1 5.38	14.127
	Lalande, 11714 - -	11.0	24.0	38.0	41 24.33	2 33.503	0 13.95	20.172
	Mars, S. P. - - -	24.3	40.0		41 38.28	1 43.382		
	Lalande, 11684 - -	14.0	26.9	41.3	45 27.40	2 27.410	1 5.10	15.789
	Lalande, 11714 - -	5.0		33.0	46 19.00	2 33.810	0 13.50	22.189
	Mars, N. P. - - -	18.9	34.3	46.1	46 32.50	1 41.772		
	Lalande, 11684 - -	36.0	49.3	3.0	59 49.43	2 27.385	1 3.97	14.337
	Lalande, 11714 - -	27.0		55.0	5 0 41.00	2 33.458	0 12.40	20.410
	Mars, S. P. - - -	39.8	55.2	7.0	0 53.40	1 43.199		
	Lalande, 11684 - -	22.0	36.1	49.1	9 35.73	2 25.242	1 2.92	15.841
	Lalande, 11714 - -	14.0			10 27.74	2 31.342	0 10.95	21.941
	Mars, N. P. - - -	25.3	40.2	52.0	10 38.65	1 39.552		
	Lalande, 11684 - -	53.0	7.0	20.5	17 6.83	2 25.291	1 2.72	14.792
	Lalande, 11714 - -	45.1		12.0	17 58.55	2 31.373	0 11.00	20.874
	Mars, S. P. - - -	56.1		23.0	18 9.55	1 40.650		
	Lalande, 11684 - -	8.0	21.7	35.3	22 21.66	2 25.218	1 2.54	15.870
	Lalande, 11714 - -			27.0	23 13.50	2 31.262	0 10.70	21.914
	Mars, N. P. - - -	10.3		38.1	23 24.20	1 39.499		
	Lalande, 11684 - -	20.4	34.2	48.1	27 34.23	2 25.200	1 2.42	14.671
	Lalande, 11714 - -	12.5		39.7	28 26.10	2 31.221	0 10.55	20.692
	Mars, S. P. - - -	23.1		50.2	28 36.65	1 40.680		
	Lalande, 11684 - -	17.2	30.7	44.0	33 30.63	2 25.160	1 1.87	16.131
	Lalande, 11714 - -	9.0		36.0	34 22.50	2 31.202	0 10.00	22.171
	Mars, N. P. - - -	19.0		46.0	34 32.50	1 39.182		
	Lalande, 11684 - -	37.5	53.0	7.0	39 52.50	2 24.990	1 1.91	14.651
	Lalande, 11714 - -	31.0		58.0	40 44.50	2 31.181	0 9.91	20.842
	Mars, S. P. - - -	40.8	56.0		40 54.41	1 40.490		
	Lalande, 11684 - -	19.0	32.5	46.2	44 32.57	2 25.003	1 0.90	16.063
	Lalande, 11714 - -	10.5			45 24.06	2 30.980	0 9.41	22.040
	Mars, N. P. - - -		33.0	47.0	45 33.47	1 39.091		
	Lalande, 11684 - -	33.1	47.1	0.0	6 41 46.73	2 27.119	0 58.04	14.310
	Lalande, 11714 - -			52.0	42 38.47	2 33.363	0 6.30	20.554
	Mars, S. P. - - -			58.5	42 44.77	1 42.960		
	Lalande, 11684 - -	4.7	18.1	32.0	48 18.27	2 27.239	0 56.40	14.450
	Lalande, 11714 - -	56.0	10.0		49 9.67	2 33.130	0 5.00	20.341
	Mars, S. P. - - -	1.0	16.0		49 14.67	1 42.940		
	Lalande, 11684 - -	30.4	44.0	57.8	57 44.07	2 27.280	0 55.43	15.491
	Lalande, 11714 - -	23.0	36.0	49.0	58 36.00	2 33.190	+ 0 3.50	+ 21.401
	Mars, N. P. - - -	26.0	41.0	53.0	58 39.50	1 41.940		

RESULTS.

Corr. Chron. m. s. + 1 53.21

	α h. m. s.	δ ° ′ ″
11684, Lalande,	6 1 34.43	+26 2 8.10
11714, Lalande,	6 2 26.53	+26 0 33.79

Mars, S. P.—11684, Lalande, Δ α Δ δ

	h. m. s.	m. s.	′ ″
Sid. T.	5 19 7.97	+1 2.97	+3 42.02
	Δ ρ	+ .00	.06
	p	— .15	3.31
	Semi-diam.,	+ .57	+ 7.60

Mars, N. P.—11684, Lalande,

Sid. T.	5 22 9.43	+1 2.57	+4 04.39
	Δ ρ	.00	.07
	p	— .15	+ 3.31
	Semi-diam.,	+ .57	— 7.60

Mars, S. P.—11714, Lalande, Δ α Δ δ

	h. m. s.	s.	′ ″
Sid. T.	5 11 27.53	+0 11.81	+5 14.25
	Δ ρ	.00	.09
	p	— .18	3.32
	Semi-diam.,	+ .57	+ 7.60

Mars, N. P.—11714, Lalande,

	h. m. s.	s.	′ ″
	5 13 42.27	+0 11.44	+5 35.91
	Δ ρ	.00	.10
	p	— .18	+ 3.31
	Semi-diam.,	+ .57	— 7.60

Bar. In. 29.962 Ther. At. 80°. Ex. 39°.

A. 7.

The star 11714 was not well seen, and at some of the comparisons scarcely visible; 11684 is larger and was more distinct than the other. The planet throughout was blazing and unsteady; the wind high.

MARS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
6	Lalande, 11684 . .	19.2	33.0	46.2	7 5 32.80	2	27.455	+ 0 54.80	+ 16.469
	Lalande, 11714 . .	11.2		38.0	6 24.60	2	33.370	0 3.00	22.384
	Mars, N. I. . . .	14.1	29.2	41.2	6 27.60	1	41.137		
	Lalande, 11684 . .	34.6	48.1	1.7	10 48.13	2	27.498	0 53.97	14.864
	Lalande, 11714 . .	26.2		53.2	11 39.70	2	33.610	+ 0 2.40	+ 20.976
	Mars, S. P. . . .	29.0	44.0	55.2	11 42.10	1	42.785		
11	Rumker, 1673 . .	28.2	41.5	56.0	3 26 41.90	2	34.070	+ 0 16.00	+ 4.436
	Mars, S. P. . . .	44.0	59.0	11.8	26 57.90	2	29.634		
	Rumker, 1673 . .	12.3	26.1	39.3	29 25.90	2	34.151	0 16.75	6.190
	Mars, N. P. . . .	29.3		56.0	29 42.65	2	27.961		
	Rumker, 1673 . .	15.0	28.3		32 28.30	2	34.059	0 15.95	4.698
	Mars, S. P. . . .	31.0	45.9	57.5	32 44.25	2	29.361		
	Rumker, 1673 . .	8.3	22.1		35 22.10	2	33.927	0 15.83	6.039
	Mars, N. P. . . .	24.3	39.0	50.5	35 37.93	2	27.888		
	Rumker, 1673 . .	20.8	34.2	48.0	39 34.33	2	33.848	0 15.77	4.546
	Mars, S. P. . . .	36.5	51.6	3.7	39 50.10	2	29.302		
	Rumker, 1673 . .	22.0	36.1	49.0	43 35.70	2	32.019	0 15.35	6.394
	Mars, N. P. . . .	37.5	53.2		43 51.05	2	25.625		
	Rumker, 1673 . .	14.0	29.2	42.0	48 28.40	2	32.149	0 14.85	4.835
	Mars, S. P. . . .	29.6		56.9	48 43.25	2	27.314		
	Rumker, 1673 . .	22.8	36.1	49.0	52 35.97	2	32.125	0 14.18	6.580
	Mars, N. P. . . .	36.5		3.8	52 50.15	2	25.545		
	Rumker, 1673 . .	21.1	34.0	48.0	55 34.37	2	32.086	0 13.53	5.039
	Mars, S. P. . . .	34.5	49.7	1.3	55 47.90	2	27.047		
	Rumker, 1673 . .	18.5	31.0		4 20 31.00	2	31.731	0 12.70	6.580
	Mars, N. P. . . .	30.3	45.2	57.1	20 43.70	2	25.151		
	Rumker, 1673 . .	1.0	14.4	28.1	24 14.50	2	31.739	+ 0 12.25	+ 5.259
	Mars, S. P. . . .	13.2	29.0		24 26.75	2	26.480		
12	Mars, S. P. . . .	59.1	14.9		3 51 12.78	2	38.900		
	Mars, N.					2	37.518		
	Rumker, 1680 . .	53.1	6.8	21.0	53 6.96	2	33.761	— 1 54.18	— 5.139
	Mars, N. P. . . .	19.0	34.2	46.8	55 32.90	2	37.525		
	Rumker, 1680 . .		26.8	41.0	57 26.98	2	33.745	1 54.08	3.780
	Mars, S. P. . . .	23.8	39.2	53.2	58 38.73	2	39.152		
	Rumker, 1680 . .		32.0	46.1	4 0 32.18	2	33 743	1 53.45	5.409
	Mars, N. P. . . .	15.8	31.1	42.9	2 29.35	2	37.472		
	Rumker, 1680 . .	10.2		39.0	4 24.60	2	33.642	1 55.25	3.830
	Mars, S. P. . . .	10.8	26.2	38.0	7 24.40	2	38.923		
	Rumker, 1680 . .	6.0	19.2	33.0	9 19.40	2	33.830	1 55.00	5.093
	Mars, N. P. . . .	38.2	54.0	5.8	11 52.00	2	37.308		
	Rumker, 1680 . .	34.1	47.9	1.2	13 47.73	2	33.670	1 55.73	3.638
	Mars, S. P. . . .	51.3	7.2	19.2	16 5 25	2	39.069		
	Rumker, 1680 . .		1.0	14.2	18 0.91	2	33.822	— 1 55.66	— 5.247

RESULTS.

Corr. Chron. + 2 m. 3.72 s.

	α h. m. s.	δ ° ′ ″
1673, Rumker	5 54 8.25	+26 16 22.75

Mars, S. P.—1673, Rumker

		Δα s.	Δδ ′ ″
Sid. T.	3 49 48.74	+ 0 14.72	+ 1 13.81
Δα		.00	.00
Semi p	—	.44	+ 3.89
Semi d	+	.57	+ 7,70

Mars, N. P.—1673, Rumker.

		s.	′ ″
Sid. T.	3 50 36.80	+ 0 14.56	+ 1 37.72
Δα		.00	.00
Semi p	—	.44	+ 3.89
Semi d	+	.57	— 7.70

Bar. In. 30.498 Ther. At. ° 78 Int. 39 Ex. 24 A. 5.

Planet diffused and unsteady. Star scarcely visible; it was thought useless to continue the observations.

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1849.		s.	s.	s.	h. m. s.	w. revs	m. s.	revs.
Dec. 12	Mars, S. P. - - -	9.3	25.1	37.0	4 33 23.15	2 39.058		
	Rumker, 1680 - -	7.1	21.0	34.7	35 20.93	2 33.830	— 1 55.78	— 5.228
	Mars, N. P. - - -	56.6	10.9	23.1	36 9.55	2 37.330		
	Rumker, 1680 - -	53.5	7.3	21.0	39 7.27	2 33.575	1 57.72	3.755
	Mars, S. P. - - -	51.2	5.9	18.0	41 4.60	2 38.430		
	Rumker, 1680 - -	48.3	2.0	16.1	43 2.13	2 33.460	1 57.53	4.970
	Mars, N. P. - - -	32.1	47.9	59.3	46 45.70	2 37.178		
	Rumker, 1680 - -	31.1		58.5	48 44.80	2 33.491	1 59.10	3.687
	Mars, S. P. - - -	32.1	48.0	0.0	0 46.05	2 38.412		
	Rumker, 1680 - -	32.1	46.0	0.0	2 46.03	2 33.413	1 59.98	4.999
	Mars, N. P. - - -	15.2	30.3	42.7	4 28.95	2 37.020		
	Rumker, 1680 - -	14.4	28.0	42.0	6 28.13	2 33.632	1 59.18	3.398
	Mars, S. P. - - -	24.0	39.2	51.1	8 37.55	2 38.392		
	Rumker, 1680 - -	24.2	37.5	51.5	10 37.73	2 33.353	2 0.18	5.039
	Mars, N. P. - - -	30.2	45.2	57.1	12 43.65	2 36.838		
	Rumker, 1680 - -	30.5	44.0	57.3	14 43.93	2 33.453	— 2 0.28	— 3.385
Dec. 17	(° 9) - - - - -	3.1	17.1	30.8	3 15 17.00	2 33.982		
	Mars, S. P. - - -		8.5	20.1	16 6.29	2 38.653		
	Mars, N. - - - -					2 37.313		+ 1 496
	B. Z., 405, 56 - -	18.5	32.1	46.1	18 32.23	2 40.149	— 2 25.94	2.836
	(° 9) - - - - -	50.7	5.1	18.3	22 4.70	2 33.993		
	Mars, N. P. - - -		55.2	7.1	22 53.29	2 37.402		
	Mars, S. - - - -					2 38.599		1.604
	B. Z., 405, 56 - -	5.6	19.0	33.1	25 19.23	2 40.203	2 25.94	2.801
	(° 9) - - - - -	33.2	47.1	1.3	27 47.20	2 34.092		
	Mars, N. P. - - -	22.8	38.1	50.9	28 36.85	2 37.522		
	Mars, S. - - - -					2 38.688		1.501
	B. Z., 405, 56 - -	48.0	2.1	16.0	31 2.03	2 40.189	2 25.18	2.667
	(° 9) - - - - -	17.9	31.3		32 31.30	2 34.001		
	Mars, N. P. - - -	6.0	21.3	34.0	33 20.00	2 37.386		
	Mars, S. - - - -					2 38.722		1.541
	B. Z., 405, 56 - -	32.9	46.1	0.0	35 46.33	2 40.263	2 26.33	2.877
	(° 9) - - - - -	51.7	5.1	19.2	39 5.33	2 33.929		
	Mars, S. P. - - -		55.1	7.2	39 53.39	2 38.658		
	B. Z., 405, 56 - -	7.1	20.7	34.1	42 20.63	2 40.247	2 26.24	1 589
	(° 9) - - - - -	30.5	44.1	58.2	43 44.26	2 33.950		
	Mars, N. P. - - -	18.1	32.0	45.8	44 31.95	2 37.400		
	Mars, S. - - - -					2 38.679		1.540
	B. Z., 405, 56 - -		59.1	13.2	46 59.26	2 40.219	2 27.31	2.819
	(° 9) - - - - -	23.2	37.2		48 37.20	2 33.851		
	Mars, N. P. - - -	11.1	26.1	39.0	49 25.33	2 37.323		
	Mars, S. - - - -					2 38.701		1.560
	B. Z., 405, 56 - -	39.2	52.3		51 52.41	2 40.261	2 27.08	2.938
	(° 9) - - - - -	58.7	12.3	26.2	54 12.40	2 34.021		
	Mars, N. P. - - -		0.5	13.0	54 59.19	2 37.385		
	Mars, S. - - - -					2 38.532		1.696
	B. Z., 405, 56 - -			41.6	57 27.32	2 40.228	2 28.13	2.843
	(° 9) - - - - -	19.3	33.1	46.8	4 0 33.06	2 34.018		
	Mars, N. P. - - -		21.1	33.0	1 19.19	2 37.312		
	Mars, S. - - - -					2 38.542		1.756
	B. Z, 405, 56 - -	34.5	48.1	1.7	3 48.10	2 40.298	— 2 28.91	+ 2.986

RESULTS.

m. s.
Corr. Chron. +2 6.42

h. m. s. ° ′ ″
1680, Rumker 5 54 32.03 +26 20 53.19

Mars, S.P.—1680, Rumker

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	4 29 15.48	— 1 56.47	— 1 19.01
Δ ρ		.00	— .02
p		— .30	+ 3.49
Semi D		+ .57	+ 7.70

Mars, N. P.—1680, Rumker.

	h. m. s.	m. s.	′ ″
Sid. T.	4 34 58.15	— 1 57.33	— 0 55.94
Δ ρ		.00	— .02
p		— .29	+ 3.48
Semi D		+ .57	— 7.70

In. °
Bar. 30.566 Ther. at 77.
Int. 33.
Ex. 22.5 A. 5.

Planet disturbed and blazing; star of comparison scarce visible.

MARS.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α.	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
49. 17	(° 9) - - - - -	28.2	41.7	55.0	4 5 41.63	2 33.971		
	Mars, N. P. - - -		29.3	42.1	6 28.29	2 37.301		
	Mars, S. - - - -					2 38.648		+ 1.601
	B. Z., 405, 56 - -	43.0		10.8	8 56.90	2 40.249	— 2 28.61	2.948
	(° 9) - - - - -	22.3	36.4	50.0	10 36.23	2 33.860		
						.925		
	Mars, N. P. - - -	9.2	24.7	37.0	11 23.10	2 37.120		
	Mars, S. - - - -					2 38.479		1.668
	B. Z., 405, 56 - -	38.0	51.1	5.0	13 51.36	2 40.085	2 28.26	3.027
						.209		
	(° 9) - - - - -	3.7	17.2	30.0	16 16.96	2 33.922		
						.880		
	Mars, N. P. - - -	48.2	3.9	16.2	17 2.20	2 37.240		
	Mars, S. - - - -					2 38.598		1.567
	B. Z., 405, 56 - -	18.2	31.7	45.5	19 31.80	2 40.165	2 29.60	2.925
	(° 9) - - - - -	19.0	33.1		21 33.10	2 33.918		
						.750		
	Mars, N. P. - - -	3.9	19.3	31.7	22 17.80	2 37.151	(Not used.)	
	Mars, S. - - - -					2 38.498		
	(° 9) - - - - -	41.2	55.1	8.3	39 54.86	2 33.930		
	Mars, N. P. - - -		40.2	51.0	40 38.19	2 36.869		
	Mars, S. - - - -					2 38.352		1.527
	B. Z., 405, 56 - -	56.1	9.3	23.2	42 9.53	2 39.879	2 31.34	3.010
	(° 9) - - - - -	33.7	47.5	1.5	45 47.56	2 33.868		
	Mars, S. P. - - -		32.5		46 31.11	2 38.009		
	Mars, N. - - - -					2 36.851		1.870
	B. Z., 405, 56 - -	48.7	2.3	16.0	49 2.33	2 39.879	2 31.22	3.028
	(° 9) - - - - -	26.3	39.7		56 39.70	2 37.950		
	Mars, S. P. - - -	8.0	24.1	36.2	57 22.76	2 42.832		
	B. Z., 405, 56 - -	41.5	55.0	9.0	59 55.16	2 44.122	2 32.40	1.290
	(° 9) - - - - -	17.2	31.0		1 31.00	2 37.830		
	Mars, S. P. - - -	58.3	14.3	26.0	5 2 12.15	2 42.591		
	B. Z., 405, 56 - -	32.1	46.1	59.3	4 45.83	2 44.130	2 33.68	1.539
	(° 9) - - - - -	38.1	52.3	5.2	7 51.86	2 37.842		
	Mars, S. P. - - -		35.2	47.2	8 33.39	2 42.283		
	B. Z., 405, 56 - -	53.0		20.9	10 6.95	2 44.092	2 33.56	1.809
	(° 9) - - - - -	22.3	36.0	50.0	15 36.10	2 36.183		
	Mars, N. P. - - -			31.0	16 17.19	2 39.112		
	B. Z, 405, 56 - -	37.2	51.5	5.3	20 51.33	2 42.379	2 34.14	3.267
	(° 9) - - - - -	14.0	28.1		21 28.10	2 36.140		
	Mars, S. P. - - -	53.9	9.0	22.0	22 7.95	2 40.422		
	B. Z., 405, 56 - -	29.0	43.1	56.1	24 42.73	2 42.309	2 34.78	1.930
						.395		
	(° 9) - - - - -	41.1		8.2	26 54.65	2 36.069		
	Mars, S. P. - - -	20.8	36.2	49.1	27 34.95	2 40.380		
	B. Z., 405, 56 - -	56.2	9.7	23.2	30 9.70	2 42.303	2 34.75	1.923
	(° 9) - - - - -	29.1	43.0		58 43.00	2 34.610		
	Mars, N. P. - - -		22.1	34.0	59 20.19	2 37.382		
	B. Z., 405, 56 - -	43.1	57.1	11.0	6 1 57.06	2 40.816	2 36.87	3.434
	(° 9) - - - - -	28.1	41.9		5 41.90	2 34.853		
	Mars, S. P. - - -		20.2	32.5	6 18.69	2 39.082		
	B. Z, 405, 56 - -	43.1	57.2	10.5	8 56.93	2 41.150	— 2 38.24	+ 2.068
	(° 9) - - - - -	5.2	19.0		11 19.00	2 34.972	Not used.	
	Mars, N. P. - - -		56.1	9.0	11 55.19	2 37.642		
	B. Z., 405, 56 - -	22.0	36.1	49.5	14 35.86	2 41.249		

RESULTS.

Corr. Chron. m. s. +2 19.18
.20

	α h. m. s.	δ ° ′ ″
B. Z., 405, 56	5 46 19.36	+26 26 40.55

Mars, N. P.—B. Z., 405, 56

	Δ α h. m. s.	m. s.	Δ δ ′ ″
Sid. T.	4 21 3.71	—2 29.64	+0 45.98
	Δ ρ	.00	.02
	p —	.30	+ 3.42
Semi-diam.,	+	.57	— 7.60

Mars, S. P.—B. Z., 405, 56

	h. m. s.	m. s.	′ ″
Sid. T.	4 34 10.55	—2 30.69	+0 26.02
	Δ ρ	.00	.01
	p —	.26	3.35
Semi-diam.,	+	.57	+ 7.60

In. °
Bar. 30.28 Ther. At. 78
Int. 44.5
Ex. 36. A. 6.

From 4h to 4h.15, comparisons good; during the remainder the planet blurred and restless.

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Dec. 17	(° 9) - - - - -	57.2	11.0		6 16 11.00	2 34.995		
	Mars, S. P. - - -		48.5	0.8	17 46.99	2 39.235		
	B. Z., 405, 56 - -	12.2	26.0	39.6	20 25.93	2 41.288	— 2 38.94	+ 2.053
	(° 9) - - - - -	5.0	19.1		23 19.10	2 35.078		
	Mars, S. P. - - -			8.2	25 54.39	2 39.152		
	B. Z., 405, 56 - -		34.0	47.7	27 33.89	2 41.278	2 39.50	2.126
	(° 9) - - - - -	11.3	25.5	39.0	29 25.26	2 35.071		
	Mars, N. P. - - -	46.3	1.8	13.8	31 0.05	2 37.832		
	B. Z., 405, 56 - -		39.5	54.3	33 39.39	2 41.295	— 2 39.40	+ 3.463
Dec. 27	Mars, S. P. - - -	41.0	56.1	8.0	2 45 54.50	2 39.348		
	B. Z., 405, 28 - - -	57.3	11.4	25.2	48 11.30	2 36.890	— 2 16.80	— 2.458
	Mars, N. P. - - -	31.2	47.1	58.9	51 45.05	2 38.039		
	B. Z., 405, 28 - - -	48.3	1.8	15.8	54 1.96	2 37.028	2 16.81	1.011
	Mars, S. P. - - -	28.1	43.0	55.2	56 41.65	2 39.170	Reject.	
	B. Z., 405, 28 - - -	49.7	3.5	17.5	59 3.56	2 37.061		
						.910		
	Mars, S. P. - - -	29.8	45.1	57.2	3 0 43.50	2 39.141		
	Mars, N. - - - -					2 38.091		1.051
	B. Z., 405, 28 - - -		0.8	15.0	3 0.69	2 37.040	2 17.19	2.101
	Mars, S. P. - - -	6.8	22.1	34.1	7 20.45	2 39.419		
	B. Z., 405, 28 - -	24.1	38.2	52.0	9 38.10	2 37.082	2 17.65	2.337
	Mars, S P. - - -	16.9	32.1	43.8	12 30.35	2 39.128		
	Mars, N. - - - -					2 38.104		1.056
	B. Z., 405, 28 - -	35.2	49.5	3.0	14 49.23	2 37.048	2 18.88	2.080
	Mars, S. P. - - -	7.1	22.2	34.2	16 20.65	2 39.101		
	Mars, N. - - - -					2 38.129		1.080
	B. Z., 405, 28 - -	25.8	39.5	53.1	18 39.46	2 37.041	2 18.81	2.061
	Mars, S. P. - - -	37.1	52.2	3.6	19 50.35	2 39.132		
	Mars, N. - - - -					2 38.112		1.044
	B. Z., 405, 28 - -	55.0	9.2	22.7	22 8.96	2 37.068	2 18.61	2.074
	Mars, S. P. - - -	5.9	20.8	33.3	23 19.60	2 39.390		
	Mars, N. - - - -					2 38.169		1.082
	B. Z., 405, 28 - -	24.8	39.0	52.5	25 38.76	2 37.087	2 19.16	2.303
	Mars, S. P. . . .	27.9	43.1	55.0	26 41.45	2 39.143		
	Mars, N.					2 38.068		1.000
	B. Z, 405, 28 . .	46.6	0.5	14.0	29 0.36	2 37.068	2 18.91	2.075
	Mars, S. P. . . .	6.2		33.4	31 19.80	2 39.463		
	Mars, N.					2 38.133		1.065
	B. Z., 405, 28 . .	15.2	29.1	43.0	33 29.10	2 37.068	2 19.30	2.395
	Mars, S. P. . . .	1.8	17.9	30.0	37 15.90	2 39.409		
	Mars, N.					2 38.188		1.219
	B. Z., 405, 28 . .	22.5	36.5	50.1	39 36 37	2 36.969	2 20.47	2.440
	Mars, S. P. . . .	58.1	13.1	25.0	43 11.55	2 39.490		
	Mars, N.					2 38.105		1.025
	B. Z, 405, 28 . .	18.0	32.0	46.1	45 32.03	2 37.080	2 20.48	2.410
	Mars, S. P. . . .	12.8	28.1		49 26.53	2 39.540		
	Mars, N.					2 38.105		1.075
	B. Z,, 405, 28 . .	33.2	47.1	0.5	51 46.93	2 37.030	2 20.40	2.510
	Mars, S. P. . . .	39.1	55.1	7.0	4 8 53.05	2 39.595		
	Mars, N.					2 38.119		1.218
	B. Z., 405, 28 . .	1.5	15.3	29.0	10 15.27	2 36.901	— 2 22.22	— 2.694

RESULTS.

m. s.
Corr. Chron. 2 34.48

	α h. m. s.	δ ° ′ ″
B. Z., 405, 28	5 29 37.39	+26 31 24.07

Mars, S. P.—B. Z., 405, 28

	Δ α h. m. s.	Δ δ m. s.
Sid. T.	3 58 34.72 — 2 21.30	— 0 36.09
Δ ρ	.00	— .01
p —	.31	+ 3.38
Semi D +	.55	+ 7.30

Mars, N. P.—B. Z., 405, 28.

	h. m. s.	m. s.	″
Sid. T.	3 58 16.36	— 2 21.25	— 0 17.52
Δ ρ		.00	.00
p —		.31	+ 3.38
Semi D +		.55	— 7.30

	In.		°	
Bar.	30.200	Ther. At.	75	
		Int.	29	
		Ex.	29	A. 8.

The dome was entirely open during these comparisons; nevertheless, at times they were quite unsatisfactory.

MARS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
.849.		s.	s	s.	h. m. s.	w. revs.	m. s.	revs.	
:. 27	Mars, S. P. . . .	3.1	18.0	30.0	4 18 16.55	2 39.529			
	Mars, N.					2 38.190		— 1.110	
	B. Z, 405, 28 . .	25.0	39.0	52.7	20 38.90	2 36.990	— 2 22.35	2.449	
						.171			
	Mars, S. P . . .	39.2	54.1	6.0	23 52.60	2 39.440			
	Mars, N.					2 38.282		1.341	
	B. Z., 405, 28 . .	2.0	15.3	29.0	26 15.43	2 36.941	2 22.83	2.499	
	Mars, S. P. . . .	5.0	20.8	33.0	30 19.00	2 39.582			
	Mars, N.					2 38.278		0.979	
	B. Z., 405, 28 . .	28.7	43.1	57.0	32 42.93	2 37.299	2 23.93	2.283	
	Mars, S. P. . . .		47.1		37 45.42	2 39.530			
	Mars, N.					2 38.430		1.498	
	B. Z., 405, 28 . .	56.0	9.6	23.0	40 9.53	2 36.937	2 24.11	2.598	
						.928			
	Mars, S. P. . . .		19.3	31.0	42 17.51	2 39.260			
	Mars, N.					2 38.058		1.125	
	B. Z, 405, 28 . .	29.1	42.5	56.0	44 42.53	2 36.933	2 25.02	2.327	
	Mars, S. P. . . .	6.0	22.1	33.7	47 19.85	2 39.168			
	Mars, N.					2 38.032		1.154	
	B. Z., 405, 28 . .	31.0	45.2	58.7	49 44.97	2 36.878	2 25.12	2.290	
	Mars, S. P. . . .	9.3	25.2	37.0	51 23.15	2 39.192			
	Mars, N.					2 38.009		1.094	
	B. Z., 405, 28 . .	34.2	48.3	1.7	53 48.07	2 36.915	2 24.92	2.277	
	Mars, S. P. . . .	24.1	39.3		56 37.91	2 39.322			
	B. Z., 405, 28 . .	50.0	4.1	18.0	59 4.03	2 36.790	2 26.12	2.532	
	Mars, S. P. . . .		28.0	39.2	5 1 25.71	2 39.250			
	Mars, N.					2 37.840		1.040	
	B. Z., 405, 28 . .	37.2		5.0	3 51.10	2 36.800	— 2 25.39	— 2.450	
c. 31	Mars, S. P. . . .	19.1	35.0	47.0	3 21 33.05	2 37.875			
	Mars, N.					36.022		+ 6.296	Corr. Chron. m. s. +2 46.40
	B. Z., 405, 15 . .	26.0		54.4	21 40.20	2 42.318	— 0 7.15	4.443	
	Mars, S. P. . . .	55.8	10.9	23.0	29 9.40	2 37.650			h. m. s. ° ′ ″
	Mars, N.					2 35.960		6.061	B. Z. 405, 15 5 21 43.94 +26 27 39.96
	B. Z, 405, 15 . .			29.7	29 15.96	2 42.021	0 6.56	4.371	Mars, S. P.—B. Z., 405, 15
	Mars, S. P. . . .	10.8	26.0	37.0	32 23.90	2 37.688			h. m. s. s. ′ ″
	B. Z., 405, 15 . .	17.2	30.8	45.0	32 31.00	2 42.012	0 7.10	4.324	Sid. T. 4 9 14.36 — 0 9.21 + 1 9.09
									Δ ρ .00 .02
	Mars, N. P. . . .	33.7	49.2	0.0	35 46.85	2 35.739			p — .24 3.15
	B. Z., 405, 15 . .		54.8	08.0	35 54.98	2 42.220	0 8.13	6.481	Semi D + .53 + 7.10
	Mars, S. P. . . .	2.9	18.5	29.7	38 16.30	2 37.550			Mars, N. P.—B. Z, 405, 15
	B. Z., 405, 15 . .	11.0	24.3	38.1	38 24.47	2 42.160	0 8.17	4.610	
	Mars, N. P. . . .	48.1	3.5	15.0	41 1.55	2 35.942			h. m. s. s. ′ ″
	B. Z., 405, 15 . .	55.0	9.0	23.0	41 9.00	2 42.088	0 7.45	6.146	Sid. T. 4 12 12.32 — 0 9.51 + 1 32.78
									Δ ρ .00 .03
	Mars, S. P. . . .	8.3	24.0	35.7	44 22.00	2 37.636			p — .23 + 3.13
	B. Z., 405, 15 . .	16.1		43.5	44 29.80	2 42.092	0 7.80	4.456	Semi D + .53 — 7.10
	Mars, N. P. . . .	21.0	36.2	48.0	46 34.50	2 35.802			In. °
	B. Z., 405, 15 . .	29.1	42.5	56.0	46 42.53	2 41.843	0 8.03	6.041	Bar. 30.330 Ther. At 72
									Int. 31
	Mars, S. P. . . .	29.1	44.3	55.8	48 42.45	2 37.279			27
	B. Z., 405, 15 . .	37.2	51.0	4.6	48 50.93	2 41.840	0 8.48	4.561	Ex. 14 A. 8.
	Mars, N. P. . . .	16.1	32.0		4 6 29.70	2 35.562			These observations unsatisfactory. The planet and
	B. Z., 405, 15 . .	26.2	39.5	53.0	6 39.57	2 42.081	— 0 9.87	+ 6.519	star blurred and tremulous.

MARS.

DATE.	OBJECTS.	Chronometer times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
1849. Dec. 31	Mars, S. P.	58.5	14.1		4 12 12.10	2 37.590			
	B. Z., 405, 15	8.0	21.6	35.2	12 21.60	2 41.840	— 0 9.50	+ 4.250	
	Mars, S. P.	14.0	29.2	40.7	22 27.35	2 37.305			
	B. Z., 405, 15	24.0	38.0	51.0	22 37.66	2 41.750	0 10.31	4.445	
	Mars, N. P.	9.1	24.0		24 22.70	2 35.801	0 9.67	5.786	
	B. Z., 405, 15	19.1	32.0	46.0	24 32.37	2 41.587			
	Mars, S. P.	11.2	26.0		26 24.80	2 37.038			
	B. Z., 405, 15	21.0	34.8	48.5	26 34.77	2 41.592	0 9.97	4.554	
	Mars, N. P.	9.5	24.8		29 23.10	2 35.620			
	B. Z., 405, 15	20.0	34.0	47.7	29 33.90	2 41.384	0 10.80	5.764	
	Mars, S. P.	47.2		14.5	32 00.85	2 36.793			
	B. Z., 405, 15	58.0	11.5	25.0	32 11.50	2 41.435	0 10.65	4.642	
	Mars, N. P.	45.2		12.3	34 58.75	2 35.281			
	B. Z., 405, 15	56.5	10.5	23.4	35 10.13	2 41.232	0 11.38	5.951	
	Mars, S. P.	43.2		11.0	38 57.10	2 36.695			
	B. Z., 405, 15	54.3	08.0	21.5	39 07.93	2 41.345	0 10.83	4.650	
	Mars, N. P.	20.8		49.2	41 35.00	2 35.471			
	B. Z., 405, 15	33.1	46.0	0.2	41 46.43	2 41.259	0 11.43	5.788	
	Mars, S. P.	6.1		33.4	46 19.75	2 36.501			
	B. Z., 405, 15	17.5	31.5	45.0	46 31.33	2 41.099	0 11.58	4.598	
	Mars, N. P.	16.2		43.6	48 29.90	2 35.319			
	B. Z., 405, 15	27.9	41.5	55.6	48 41.66	2 41.011	0 11.76	5.692	
	Mars, S. P.	0.8		28.0	51 14.40	2 36.598			
	B. Z., 405, 15	12.2	26.2	39.7	51 26.03	2 41.120	0 11.63	4.522	
	Mars, N. P.	29.0		56.0	53 42.50	2 35.150			
	B. Z., 405, 15	41.0	54.3	8.0	53 54.43	2 41.058	— 0 11.93	+ 5.908	

OCCULTATIONS OF STARS BY THE MOON.

DATE.	OBJECTS.	Mag.		Chron. time.	Corr. chron.	Mean time.	Obs.	REMARKS.
1849.				Mean T.				
				h. m. s.	h m. s.	h. m. s.		
Jan. 5	1203, Rumker . .	9.	Im.	11 34 2.0	— 3 35 2.7	7 58 59.3	C.	
	75, Tauri . . .	6.	Im.	11 40 12.8	35 2.7	8 5 10.1	C.	
	75, Tauri . . .	6.	Em.	12 56 37.0	35 2.7	9 21 34.3	C.	Perhaps a few seconds late.
	B. Z, 330 . . .	9.	Im.	11 56 42.0	35 2.7	8 21 39.3	B.	
	Anonymous . . .	9.	Im.	12 39 51.5	35 2.7	9 4 48.8	C.	Precedes 1391 three seconds: 0.5s. north of 1394.
	1391, B. A. C. . .	5.	Im.	12 56 2.0	35 2.6	9 20 59.4	C.	Unsatisfactory.
		5.	Em.	1 50 40.0	35 2.6	10 15 37.4	C.	
	1394, B. A. C. . .	6.	Im.	1 14 39.0	35 2.6	9 39 36.4	C.	
	1406, B. A. C. . .	7.	Im.	2 42 55.5	35 2.6	11 7 52.9	C.	
	α Tauri	1.	Im.	3 48 57.0	35 2.5	12 13 54.5	C.	Instantaneous.
			Em.	4 55 40.0	— 3 35 2.5	13 20 37.5	C.	About four seconds in becoming visibly detached from the moon's limb.
				Sid. T.	m. s.			
Feb. 7	A. Leonis . . .	5.	Im.	6 34 48.0	— 1 4.31	9 21 23.27	F.	Immersion uncertain two seconds.
		5.	Em.	7 29 4.3	1 4.20	10 15 30.79	F.	
Feb. 9	β Virginis . . .	3.5	Im.	6 18 43.0	0 57.66	8 57 35.72	F.	Immersion uncertain two or three seconds.
			Em.	7 11 31.2	0 57.54	9 50 15.39	F.	
March 31	14814, Lalande . .	7.	Im.	8 40 7.3	1 32.28	8 1 27.00	F.	
April 30	A. Leonis . . .	5.	Im.	9 5 34.5	0 19.85	6 30 5.06	F.	Clouds, but observed within one-tenth of a second.
			Em.	10 27 44.2	0 19.91	7 52 1.24	F.	
	3464, B. A. C. . .	7.5	Im.	10 35 39.2	0 19.91	7 59 54.94	F.	
May 2	β Virginis . . .	3.5	Em.	12 20 4.3	0 16.49	9 36 14.53	F.	
July 15	70, Tauri . . .	7.	Im.	23 13 8.0	0 19.77	15 36 30.61	F.	Not well seen, the moon too bright.
	θ^1 Tauri	4.5	Im.	0 23 41.0	0 19.76	16 46 52.05	F.	
	θ^2 Tauri	4.5	Im.	0 26 16.0	0 19.76	16 49 26.64	F.	
22	c. Leonis . . .	5.5	Im.	15 37 48.5	0 3.43	7 35 10.63	F.	Moon's limb not visible—certain within two-tenths of a second.
			Em.	16 15 3.2	— 0 3.38	8 12 19.27	F.	
25	l. Virginis . . .	6.	Im.	15 34 57.2	+ 0 2.18	7 20 37.65	F.	Too late three-tenths of a second.
Aug. 24	5188, B. A. C. . .	7.	Im.	19 48 46.1	+ 1 20.21	9 37 5.54	F.	Very well seen.
Sept. 25	Anonymous . . .		Im.	22 24 28.2	— 0 24.15	10 4 49.05	F.	
	6707, B. A. C. . .		Im.	22 28 51.2	— 0 24.15	10 9 11.34	F.	
Oct. 24	Anonymous . . .		Im.	23 38 0.3	+ 0 30.33	9 25 2.15	F.	
Nov. 23	h^2 Aquar. . . .	7.	Im.	0 11 18.2	1 25.73	8 1 12.60	F.	
	h^1 Aquar. . . .	6.	Im.	0 13 3.3	1 25.73	8 2 57.40	F.	
29	α Tauri	1.	Im.	1 20 36.2	1 35.98	8 46 54.00	F.	The moon full at 10h. 17m., the dark limb presenting little irregularity. At the immersion a corona of 30 degrees diameter around the moon; the star showing dusky red. The luminous centre of the star was in contact with the bright edge of the moon ten seconds before disparition. At the emersion flying clouds, but star seen at the instant of its reappearance.
			Em.	2 29 53.2	+ 1 36.09	9 55 59.72	F.	

In the column marked "Obs." C. indicates Professor Coffin, B. Professor Benedict, and F. Mr. Ferguson.

OBSERVATIONS

WITH THE

EQUATORIAL,

1850.

NATIONAL OBSERVATORY.

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Jan. 5	8109, B. A. C. - -	19.4	31.7	44.3	2 8 31.80	3 54.149	+ 3 0.55	+ 79.030
	Metis - - - -		32.5	44.6	11 32.35	1 35.199		
	8109, B. A C. - -	59.3	12.0	24.2	15 11.83	3 54.005	2 59.17	78.974
	Weisse XXIII, 206	44.0	57.0		17 56.68	1 52.840		
	Metis - - - -		11.0		18 11.00	1 35.111		
	8109, B. A. C. - -	25.5	38.0	50.0	22 37.83	3 53.686	+ 3 1.00	+ 79.026
	Metis - - - -		39.0	51.0	25 38.83	1 34.740		
Jan. 14	Metis - - - -	40.5	53.0		1 56 52.83	1 46.290	+ 1 10.00	+ 21.032
	Weisse XXIII, 592		3.0	15.5	58 2.83	2 37.155		
	Metis - - - -	25.0	38.0	50.2	2 7 37.92	1 46.409	1 8.20	20.898
	Weisse XXIII, 592		46.2	58.0	8 46.12	2 37.140		
	Metis - - - -	18.2		44.0	12 31.10	1 46.132	1 8.93	20.767
	Weisse XXIII, 592	28.1	40.0	52.0	13 40.03	2 36.730		
	Metis - - - -	23.0	34.2		53 34.12	1 46.391	1 5.30	22.016
	Weisse XXIII, 592		39.5	52.0	54 39.42	2 38.241		
	Metis - - - -	38.5	51.0		58 50.92	1 46.540	1 5.08	21.711
	Weisse XXIII, 592	44.0		8.0	59 56.00	2 38.084		
	Metis - - - -	46.5	59.0		3 1 58.63	1 46.615	1 4.60	21.693
	Weisse XXIII, 592		3.5	15.8	3 2.23	2 38.141		
	Metis - - - -	5.5	17.2		6 16.93	1 45.950	+ 1 5.80	+ 22.038
	Weisse XXIII, 592	10.2	23.0	35.0	7 22.73	2 37.821		

RESULTS.

Corr. Chron. — 2 m. 0.62 s.

	α h. m. s.	δ ° ′ ″
8109, B. A. C.	23 10 5.03	—10 0 8.60

Metis — 8109, B. A. C.		Δ α m. s.	Δ δ ′ ″
Sid. T.	2 16 26.77	+ 3 0.24	+ 20 14.32
	Δ ρ	— .05	1.27
	ρ	+ .12	+ 2.39

Corr. Chron. — 1 m. 44.30 s.

	α h. m. s.	δ ° ″ ′
Weisse XXIII, 592	23 28 32.16	—7 56 51.58

Metis — Weisse XXIII, 592		Δ α m. s.	Δ δ ′ ″
Sid. T.	2 35 4.62	+ 1 6.84	+ 5 29.69
	Δ ρ	— .01	.31
	ρ	+ .12	+ 2.26

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Jan. 14	Astræa - - - - -	48.6		13.0	5 21 0.80	2 47.685		
	Weisse II, 880 - -	22.0	34.2	47.1	21 34.43	1 45.167	— 0 33.63	— 32.685
	893 - -	16.2	28.5	41.0	22 28.57	1 43.460	1 27.77	34.392
	Astræa - - - - -	12.0		37.3	26 24.65	2 47.795		
	Weisse II, 880 - -	45.8	58.5	11.2	26 58.50	1 45.560	0 33.85	32.402
	893 - -	40.0	52.5	4.0	27 52.17	1 43.728	1 27.52	34.234
	Astræa - - - - -	8.5	21.0	33.0	36 20.83	2 47.610		
	Weisse II, 880 - -	42.2	54.8	7.0	36 54.67	1 45.501	0 33.84	32.176
	893 - -	36.0	48.2	1.5	37 48.57	1 43.772	— 1 27.74	— 34.005
Feb. 5	Astræa - - - - -	40.3	53.0	5.0	4 48 52.77	2 37.529		
	Weisse III, 114 - -		19.0	41.8	49 29.17	1 38.371	— 0 36.40	— 29.325
	Astræa - - - - -	5.0	18.2	30.1	54 17.77	2 37.281		
	Weisse III, 114 - -		53.8	6.2	54 53.62	1 38.481	0 35.85	28.967
	Astræa - - - - -	52.0	5.0	17.5	59 4.83	2 37.308		
	Weisse III, 114 - -			53.0	5 0 40.38	1 38.463	0 35.55	29.012
	Astræa - - - - -	6.0	19.0		5 18.92	2 36.880		
	Weisse III, 114 - -		55.0	8.0	5 54.92	1 38.460	0 36.00	28.587
	Astræa - - - - -	51.8	4.0	16.5	10 4.10	2 36.908		
	Weisse III, 114 - -	28.2		53.0	10 40.60	1 38.450	0 36.50	28.625
	Astræa - - - - -	10.5	23.7	35.9	14 23.37	2 36.734		
	Weisse III, 114 - -	46.1		11.5	14 58.80	1 38.356	0 35.43	28.545
	Astræa - - - - -	21.0	33.7	46.0	18 33.57	2 36.550		
	Weisse III, 114 - -		9.2	21.8	19 9.22	1 38.492	0 35.65	28.225
	Astræa - - - - -	56.0	8.4	21.0	22 8.47	2 36.652		
	Weisse III, 114 - -	31.2	43.8	56.3	22 43.77	1 38.419	0 35.30	28.400
	Astræa - - - - -	23.5	36.2	48.9	25 36.20	2 36.635		
	Weisse III, 114 - -	58.3		23.7	26 11.00	1 38.373	0 34.80	28.429
	Astræa - - - - -	19.5	31.8	44.0	30 31.77	2 36.410		
	Weisse III, 114 - -	54.1	6.3	19.2	31 6.53	1 38.540	— 0 34.76	— 28.037
Feb. 11	Weisse III, 172 - -	7.5	20.0	32.0	6 7 19.83	3 36.577	+ 2 31.00	+ 44.651
	Astræa - - - - -			3.0	9 50.83	2 21.838		
	Weisse III, 172 - -	39.5	52.0	4.8	13 52.10	3 36.503	2 29.60	44.679
	Astræa - - - - -		22.0	34.0	16.21.70	2 21.736		
	Weisse III, 172 - -	43.2	55.8	0.8	30 55.67	3 36.528	2 31.46	45.020
	Astræa - - - - -	15.0	27.3	39.1	33 27.13	2 21.420		
	Weisse III, 172 - -	9.5	22.5	35.0	35 22.33	3 36.565	2 31.90	45.062
	Astræa - - - - -	41.7	54.0	7.0	37 54.23	2 21.408		
	Weisse III, 172 - -	16.1	27.9	40.0	40 28.00	3 36.528	2 30.75	45.271
	Astræa - - - - -	46.5	59.0		42 58.75	2 21.169		
	Weisse III, 172 - -	51.8	4.3	17.5	44 4.53	3 36.509	2 32.03	45.291
	Astræa - - - - -	24.1	36.0		47 36.56	2 21.130		
	Weisse III, 172 - -	18.2		43.5	50 30.85	3 36.538	2 32.15	45.292
	Astræa - - - - -	50.0	3.0		54 3.00	2 21.158		
	Weisse III, 172 - -	50.2	2.3	15.2	56 2.57	3 36.521	+ 2 30.93	+ 45.483
	Astræa - - - - -		33.5		58 33.50	2 20.950		

RESULTS.

Corr. to Chron. — 1 m. 42.90 s.

	α h. m. s.	δ ° ′ ″
Weisse II, 880,	2 50 18.88	+ 9 35 50.74
Weisse II, 893,	2 51 12.30	9 36 20.09

Astræa — Weisse II, 880,	Δα h. m. s.	Δδ ′ ″
Sid. T. 5 26 12.53	— 0 33.77	— 8 18.29
Δρ	.00	— .21
p +	.15	+ 2.42

Astræa — Weisse II, 893.		
Sid. T. 50 26 12.53	— 1 27.68	— 8 45.78
Δρ	.00	— .23
p +	.15	+ 2.42

Corr. to Chron. — 1 m. 3.76 s.

	α h. m. s.	δ ° ′ ″
Weisse III, 114,	3 6 43.19	+ 11 44 49.09

Astræa — Weisse III, 114,	Δα h. m. s.	Δδ ′ ″
Sid. T. 5 9 49.41	— 0 35.62	— 7 19.80
Δρ	.00	— .17
p +	.11	+ 1.99

Corr. to Chron. — 52.11 s.

	α h m. s.	δ ° ′ ″
Weisse III, 172,	3 10 0.48	+ 12 16 9.22

Astræa — Weisse III, 172,	Δα h. m. s.	Δδ ′ ″
Sid. T. 6 36 43.61	+ 2 31.23	+ 11 33.07
Δρ	— .01	.32
p +	.17	+ 2.08

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Feb. 14	Weisse III, 205	7.3	20.0	32.1	4 27 19.80	2 33.938	+ 4 16.85	— 3.891
	Astræa	24.0	37.0		31 36.65	2 37.829		
	Weisse III, 205	3.8	16.0	28.6	35 16.13	2 33.955	4 17.38	3.592
	Astræa	21.0			39 33.51	2 37.547		
	Weisse III, 205	5.2	17.9	30.2	41 17.77	2 33.883	4 17.23	3.459
	Astræa	22.0	35.0	48.0	45 35.00	2 37.342		
	Weisse III, 205	9.2	21.6	34.2	47 21.67	2 33.979	4 17.73	3.390
	Astræa	26.7	39.5	52.0	51 39.40	2 37.369		
	Weisse III, 205	53.1	5.7	18.2	54 5.67	2 34.120	4 18.55	3.200
	Astræa		24.0	37.0	58 24.22	2 37.320		
	Weisse III, 205	43.1	56.0	9.0	5 0 56.03	2 34.148	+ 4 18.97	— 3.024
	Astræa	2.1	15.0		5 15.00	2 37.172		
Feb. 16	Weisse III, 306	34.1	6.2	18.2	6 21 6.17	2 38.172	+ 0 57.50	— 5.960
	Astræa		3.4	16.2	22 3.67	2 44.132		
	Weisse III, 306	2.3	14.6	27.1	26 14.67	2 38.390	0 57.83	5.673
	Astræa	0.2		24.8	27 12.50	2 44.063		
	Weisse III, 306	33.2	45.8	58.2	30 45.73	2 38.436	0 58.47	5.623
	Astræa	32.2	44.3	56.0	31 44.17	2 44.059		
	Weisse III, 306	36.2	49.0	1.3	43 48.63	2 38.028	0 59.16	5.524
	Astræa			0.2	44 47.79	2 43.552		
	Weisse III, 306	41.0	53.7	6.5	50 53.73	2 38.002	0 59.87	5.276
	Astræa	41.2	53.6	6.0	52 53.60	2 43.278		
	Weisse III, 306	41.2	54.0	6.0	7 52 53.73	2 37.070	1 2.70	3.812
	Astræa	44.0	56.1	9.2	53 56.43	2 40.882		
	Weisse III, 306	30.8	43.1	55.8	56 43.23	2 36.872	1 2.77	3.738
	Astræa		46.0		57 46.00	2 40.610		
	Weisse III, 306	39.1	51.6	4.0	59 51.57	2 37.362	1 4.20	3.068
	Astræa		55.0	7.0	8 0 55.77	2 40.430		
	Weisse III, 306	42.1	54.2	7.1	3 54.47	2 36.662	1 4.12	3.680
	Astræa			11.0	4 58.59	2 40.342		
	Weisse III, 306	9.3	22.0		7 22.00	2 37.672	+ 1 4.00	— 3.475
	Astræa		26.0	38.0	8 26.00	2 41.147		
Feb. 17	Weisse III, 306	8.5	21.3	32.7	6 7 20.83	3 43.395	+ 2 10.68	+ 22.637
	Astræa			44.0	9 31.51	2 50.670		
	Weisse III, 306	58.0	11.2	23.7	19 10.97	3 43.323	2 10.98	22.513
	Astræa	9.2		34.7	21 21.95	2 50.722		
	Weisse III, 306	23.5	36.0	49.1	30 36.20	3 42.619	2 11.51	23.065
	Astræa	35.1	47.5		32 47.75	2 49.466		
	Weisse III, 306	55.2	7.5	19.9	53 7.53	3 42.582	2 12.77	23.181
	Astræa	8.1	20.3	32.5	55 20.30	2 49.313		
	Weisse III, 306	10.6	23.2	36.0	7 17 23.27	3 42.618	2 13.23	23.690
	Astræa	24.0		49.0	19 36.50	2 48.840		
	Weisse III, 306	21.3	33.5	46.0	27 33.60	3 42.509	+ 2 14.33	+ 23.910
	Astræa	35.5	48.0	0.3	29 47.93	2 48.511		

RESULTS.

Feb. 14 — Corr. to Chron. — 45.70 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse III, 205,	3 11 35.62	+12 49 36.10

Astræa—Weisse III, 205,	Δ α (m. s.)	Δ δ (′ ″)
Sid. T. 4 47 54.93	+ 4 17.78	— 0 52.65
Δ ρ	.00	— .02
ρ	+ .09	+ 1.81

Feb. 16 — Corr. to Chron. — 42.62 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse III, 306,	3 17 24.19	+13 5 11.49

Astræa—Weisse III, 306,	Δ α (m. s.)	Δ δ (′ ″)
Sid. T. 7 17 45.83	+ 1 1.06	— 0 55.07
Δ ρ	.00	— .03
ρ	+ .18	+ 2.06

Feb. 17 — Corr. to Chron. — 41.04 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse III, 306,	3 17 24.17	+13 5 11.44

Astræa—Weisse III, 306,	Δ α (m s.)	Δ δ (′ ″)
Sid. T. 6 49 3.28	+ 2 12.25	+ 5 56.05
Δ ρ	.00	.17
ρ	+ .16	+ 1.99

ASTRÆA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
). 19	Astræa		39.5	51.0	5 45 39.50	1 45.570		
	Weisse III, 447 . .	24.3	36.5	49.2	48 36.67	2 51.338	— 2 57.17	+ 35.935
	Astræa		45.0	57.0	51 45.00	1 45.180		
	Weisse III, 447 . .		43.0	56.0	54 43.00	2 51.312	2 58.00	36.299
	Astræa			47.5	59 35.03	1 45.179		
	Weisse III, 447 . .	20.3	32.5	45.0	6 2 32.60	2 51.268	2 57.57	36.156
	Astræa		20.0		5 20.00	1 45.039		
	Weisse III, 447 . .	4.6	17.5	29.5	8 17.20	2 51.250	2 57.20	36.378
	Astræa			20.0	11 7.43	1 44.810		
	Weisse III, 447 . .	52.0	4.3	16.8	14 4.37	2 51.302	2 56.94	36.659
	Astræa	5.2		30.5	7 53 17.85	1 38.678		
	Weisse III, 447 . .	56.0	8.5	21.0	56 8.50	2 46.869	2 50.65	38.358
	Astræa	19.2	31.0		7 59 31.00	1 38.249		
	Weisse III, 447 . .	10.0	22.2	34.8	8 2 22.23	2 46.789	2 51.23	38.707
	Astræa	41.2	53.5	6.0	4 53.57	1 38.141		
	Weisse III, 447 . .	32.7	45.0	58.2	7 45.30	2 46.710	— 2 51.73	+ 38.736
). 22	Astræa		51.0		5 19 51.00	2 39.702		
	Weisse III, 474 . .	56.0	9.5	22.1	20 9.20	3 38.425	— 0 18.20	+ 28.635
	Astræa	4.1	16.3	29.0	23 16.47	2 39.765		
	Weisse III, 474 . .	22.0	34.2	47.1	23 34.43	3 38.542	0 17.96	28.689
	Astræa	40.2	52.3	5.0	26 52.50	2 39.610		
	Weisse III, 474 . .	57.3		23.0	27 10.15	3 38.595	0 17.65	28.897
	Astræa	36.5	49.0	1.3	29 48.93	2 39.590		
	Weisse III, 474 . .	54.2	6.8	19.0	30 6.67	3 38.410	0 17.74	28.732
	Astræa	34.3	46.0	59.0	32 46.43	2 39.479		
	Weisse III, 474 . .	52.1	4.3	17.0	33 4.47	3 38.500	0 18.04	28.933
	Astræa	2.3	14.3	27.2	5 35 14.60	2 39.585		
	Weisse III, 474 . .		32.0	44.4	35 32.05	3 38.520	0 17.45	28.847
	Astræa	31.5	43.7	56.0	7 35 43.73	2 47.155		
	Weisse III, 474 . .	42.0	54.3	7.2	35 54.50	3 48.276	0 10.77	31.033
	Astræa	35.2	47.5	59.7	38 47.47	2 47.078		
	Weisse III, 474 . .	46.0	58.3	11.0	38 58.43	3 48.272	0 10.96	31.106
	Astræa	15.7	28.2	41.0	43 28.30	2 46.890		
	Weisse III, 474 . .	26.5	39.0	51.3	43 38.93	3 48.442	0 10.63	31.464
	Astræa	3.5	16.3	29.0	46 16.26	2 46.718		
	Weisse III, 474 . .	14.2	27.0		46 26.96	3 48.245	0 10.70	31.439
	Astræa	41.0	53.3	6.0	49 53.43	2 46.565		
	Weisse III, 474 . .	52.0	4.5		50 4.53	3 48.230	0 11.10	31.577
	Astræa	27.3	40.0	53.0	52 40.10	2 46.500		
	Weisse III, 474 . .	37.5	50.0		52 50.20	3 48.232	— 0 10.10	+ 31.644
b. 23	Weisse III, 474 . .	11.2	23.3	36.0	5 33 23.50	3 41.637	+ 1 2.17	+ 57.508
	Astræa	13.3	26.2	37.5	34 25.67	1 44.209		
	Weisse III, 474 . .	30.8	43.2	56.0	46 43.33	3 41.639	+ 1 2.74	+ 57.574
	Astræa	33.2	46.0	59.0	47 46.07	1 44.145		

RESULTS.

Corr. Chron. —38.02 s.

	α h. m. s.	δ ° ′ ″
Weisse III, 447,	3 25 1.69	+13 23 57.71

Astræa—Weisse III, 447,

	Δ α m. s.	Δ δ ′ ″
Sid. T. 6 20 45.65	— 2 55.06	+9 31.04
Δ ρ	.00	.23
p +	.14	+ 1.87

Corr. Chron. —33.91 s.

	α h. m. s.	δ ° ′ ″
Weisse III, 474,	3 26 12.96	+13 39 56.06

Astræa—Weisse III, 474

	Δ α s.	Δ δ ′ ″
Sid. T. 6 35 24.36	—0 14.27	+7 42.37
Δ ρ	.00	.20
p +	.15	+ 1.85

(Continued.)

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
		s	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850. Feb. 23	Weisse III, 474 - -	38.5	51.0	3.6	5 54 51.03	3 41.701	+ 1 2.40	+ 57.941
	Astræa - - - - -	41.0	53.0		55 53.43	1 43.840		
	Weisse III, 474 - -	26.2	39.0	51.3	6 3 38.83	3 41.649	1 3.04	57.914
	Astræa - - - - -	29.5	41.8	54.3	4 41.87	1 43.815		
	Weisse III, 474 - -	14.4		39.6	9 27.00	3 41.649	1 4.00	58.020
	Astræa - - - - -	18.3	31.0		10 31.00	1 43.709		
	Weisse III, 474 - -	31.5		56.2	16 43.85	3 41.695	+ 1 4.88	+ 58.120
	Astræa - - - - -	36.3	48.6	1.3	17 48.73	1 43.655		
Feb. 25	(° 1) - - - - -	23.5	36.0		5 40 36.0	3 40.871	+ 1 50.70	+ 47.595
	Astræa - - - - -	14.0	26.7		42 26.7	2 23.188		
	(° 1) - - - - -	20.8	33.5		48 33.40	3 40.929	1 51.30	47 706
	Astræa - - - - -	12.2	24.7	37.2	50 24.70	2 23.135		
	(° 1) - - - - -	6.5	19.0	31.3	53 18.93	3 41.002	1 51.57	47.924
	Astræa - - - - -	58.2	10.3	23.0	55 10 50	2 22.990		
	(° 1) - - - - -	57.3	10.5	23.1	57 10.30	3 40.965	1 51.23	47.990
	Astræa - - - - -	49.1			59 1.53	2 22.887		
	(° 1) - - - - -	36.9	49.4	2.0	6 0 49.43	3 40.912	1 52.20	48.114
	Astræa - - - - -	29.2	41.5		2 41.63	2 22.710		
	(° 1) - - - - -	29.3	42.0	54.3	6 41.87	3 40.841	1 52.50	48.003
	Astræa - - - - -	21.7	34.6		8 34.37	2 22.750		
	(° 1) - - - - -	49.8	2.5	14.8	12 2.37	3 40.979	1 52.63	48.114
	Astræa - - - - -		55.0		13 55.00	2 22.777		
	(° 1) - - - - -	56.5	9.0	21.3	17 8.93	3 40.932	1 52.07	48.418
	Astræa - - - - -	48.5	1.0		19 1.00	2 22.426		
	(° 1) - - - - -	12.0	24.6	37.3	25 24.63	3 40.921	1 53.35	48.885
	Astræa - - - - -	5.0		31.0	27 17.98	2 21.948		
	(° 1) - - - - -	8.5		33.5	30 21.00	3 40.838	+ 1 53.50	+ 48.660
	Astræa - - - - -	1.7	14.5		32 14.50	2 22.090		
Feb. 26	Astræa - - - - -		9.5	22.0	7 30 9.50	2 42.830		
	940, Rumker - - -		31.4	43.6	32 31.40	2 38.873	— 2 21.90	— 3.957
	Astræa - - - - -	16.0	28.5	41.0	38 28.50	2 42.445		
	940, Rumker - - -		49.2	2.0	40 49.35	2 38.529	2 20.85	3.916
	Astræa - - - - -		10.5	23.0	46 10.48	2 42.280		
	940, Rumker - - -	17.7	30.3	42.7	48 30.23	2 38.470	2 19.75	3.810
	Astræa - - - - -			20.2	52 7.70	2 41.990		
	940, Rumker - - -	15.4	28.1	40.7	54 28.07	2 38.450	2 20.37	3.540
	Astræa - - - - -		24.2	36.3	8 3 24.20	2 41.502		
	940, Rumker - - -	31.0		56.0	5 43 50	2 38.242	2 19.30	3.260
	Astræa - - - - -		11.2		13 11.20	2 41.360		
	940, Rumker - - -	17.5	29.7	42.3	15 29.83	2 38.060	— 2 18.63	— 3.300
March 4	Astræa - - - - -	30.5	43.0		7 57 42.70	3 27.028		
	Weisse III, 774 - -	52.0	4.5	16.1	58 4.20	2 33.530	— 0 21.50	— 23.410
	Astræa - - - - -	58.5		24.0	8 2 11.25	3 26.969		
	Weisse III, 774 - -		31.5	44.0	2 31.50	2 33.510	— 0 20.25	— 23.371

RESULTS.

Corr to Chron. — 31.50 s.

	α h. m. s.	δ ° ′ ″
Weisse, III, 474,	3 26 12.95	+ 13 39 56.02

Astræa—Weisse, III, 474,	Δα m. s.	Δδ ′ ″
Sid. T. 5 57 59.63	+ 1 3.20	+ 14 49.06
Δρ	.00	.33
p	+ .12	+ 1.74

Corr. to Chron. — 27.93 s.

	α h. m. s.	δ ° ′ ″
(° 1)	3 28 6.46	+ 13 57 9.04

Astræa — (° 1)	Δα m. s.	Δδ ′ ″
Sid. T. 6 6 18.86	+ 1 52.10	+ 12 19.92
Δρ	.00	.29
p	+ .12	+ 1.75

Corr. to Chron. — 26.42 s.

	α h. m. s.	δ ° ′ ″
940, Rumker,	3 33 48.51	+ 14 18 16.75

Astræa — 940, Rumker,	Δα m. s.	Δδ ′ ″
Sid. T. 7 50 8.84	— 2 20.13	— 0 55.79
Δρ	.00	— .03
p	+ .18	+ 1.96

(Continued.)

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850. March 4	Astræa	2.5			8 8 14.93	3 26.735		
	Weisse III, 774 . .	22.0	34.5	47.1	8 34.53	2 33.367	— 0 19.60	— 23.280
	Astræa	40.0	52.6		10 52.53	3 26.548		
	Weisse III, 774 . .	1.0	13.6	26.0	11 13.53	2 33.350	0 21.00	23.110
	Astræa	49.7	2.3		15 2.23	3 26.410		
	Weisse III, 774 . .	9.6	22.0	34.5	15 22.03	2 33.248	0 19.80	23.074
	Astræa	39.5			17 51.93	3 26.320		
	Weisse III, 774 . .	0.2	12.4	25.0	18 12.53	2 33.349	— 0 20.60	— 22.883
March 5	Weisse III, 774 . .	32.0		57.5	6 37 44.75	1 58.701	+ 1 3.35	+ 3.079
	Astræa		48.1	0.3	38 48.10	1 55.622		
	Weisse III, 774 . .	31.8	44.7	57.5	44 44.67	1 58.770	1 3.16	3.035
	Astræa	35.0	47.5	1.0	45 47.83	1 55.735		
	Weisse III, 774 . .	23.0	35.6	48.2	50 35.60	1 58.782	+ 1 4.40	+ 3.304
	Astræa	27.5	39.7	53.0	51 40.06	1 55.478		
March 10	(° 2)		6.5	19.2	7 9 6.72	2 37.353	+ 1 9.75	+ 2.691
	Astræa	4.2	16.2	29.0	10 16.47	2 34.662		
	(° 2)	36.0	48.3	1.0	15 48.43	2 37.391	1 11.07	2.773
	Astræa	47.0		12.0	16 59.50	2 34.618		
	(° 2)	53.5	6.0		24 6.06	2 37.620	1 9.80	3.164
	Astræa	3.1	16.0	28.5	25 15.86	2 34.456		
	(° 2)	15.0	27.5		27 27.53	2 37.390	1 10.90	3.095
	Astræa	26.3	38.0	51.0	28 38.43	2 34.295		
	(° 2)	54.8	7.1	20.0	34 7.30	2 37.292	1 11.40	2.992
	Astræa	6.0	19.1	31.0	35 18.70	2 34.300		
	(° 2)	36.2	49.0	1.5	38 48.90	2 37.489	1 10.50	3.437
	Astræa		59.5	12.1	39 59.45	2 34.052		
	(° 2)	49.1	2.3	14.8	51 2.07	2 37.323	1 12.23	3.491
	Astræa	1.5		27.1	52 14.30	2 33.832		
	(° 2)	48.7	1.1	13.4	58 1.07	2 37.292	+ 1 12.86	+ 3.555
	Astræa	1.3	14.0	26.5	59 13.93	2 33.737		
March 11	(° 2)	6.3	19.0		6 49 19.00	2 37.385	+ 2 50.00	+ 8.573
	Astræa		9.0	22.0	52 9.00	2 28.812		
	(° 2)	13.2	26.1	39.0	59 26.10	2 37.399	2 49.97	8.880
	Astræa	3.5	16.0	28.7	7 2 16.07	2 28.519		
	(° 2)	57.1	9.3	22.0	6 9.47	2 37.479	2 50.80	8.990
	Astræa			13.0	9 0.27	2 28.489		
	(° 2)	43.7	57.1	9.5	11 56.77	2 37.387	2 50.90	9.157
	Astræa	35.1	47.7	0.2	14 47.67	2 28.230		
	(° 2)	34.1	46.1	59.0	46 46.40	2 37.212	+ 2 53.20	+ 9.771
	Astræa	27.3	39.5	52.0	49 39.60	2 27.441		

RESULTS.

Corr. Chron. —16.11 s.

	α h. m. s.	δ ° ′ ″
Weisse III, 774,	3 40 25.82	+15 7 6.44

Astræa—Weisse III, 774,

	h. m. s.	Δ α s.	Δ δ ′ ″
Sid. T.	8 8 19.31	—0 20.46	—5 56.38
	Δ ρ	— .01	.23
	p	+ .18	— 1.93

Corr. Chron. —14.98 s.

	α h. m. s.	δ ° ′ ″
Weisse III, 774,	3 40 25.80	+15 7 6.41

Astræa—Weisse III, 774,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	6 45 10.35	+1 3.64	+0 48.24
	Δ ρ	.00	.02
	p	+ .14	+ 1.69

Corr. Chron. —6.83 s.

Astræa—(° 2)

	h. m. s.	m. s.	′ ″
Sid. T.	7 33 22.75	+1 11.06	+0 48.40
	Δ ρ	.00	.02
	p	+ .16	+ 1.72

Corr. Chron. —5.20 s.

Astræa—(° 2)

	h. m. s.	m. s.	′ ″
Sid. T.	7 15 29.32	+2 50.97	+2 19.46
	Δ ρ	.00	.06
	p	+ .15	+ 1.67

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Jan. 5	Mars, S. P. - - -	11.8	27.1	39.0	2 55 25.40	2 44.182		
	B. Z., 523, 15 - -	23.0	36.0	49.5	57 36.17	2 36.419	— 2 10.77	— 7.763
	Mars, S. P. - - -	28.9	44.1	56.0	3 6 42.50	2 44.060		
	B. Z., 523, 15 - -	40.3	53.5	7.0	8 53.60	2 36.113	2 11.10	7.947
	Mars, N. P. - - -	42.8	58.6	10.5	10 56.65	2 42.598		
	B. Z., 523, 15 - -	54.7	8.2	22.5	13 8.47	2 36.139	2 11.82	6.459
	Mars, S. P. - - -	55.8	11.0	23.1	15 9.45	2 43.982		
	B. Z., 523, 15 - -	7.3	21.4	34.8	17 21.17	2 35.952	2 11.72	8.030
	Mars, N. P. - - -	50.0	5.3	17.9	19 3.95	2 42.649		
	B. Z., 523, 15 - -	2.7	15.7	29.0	21 15.80	2 35.982	2 11.85	6.667
	Mars, S. P. - - -	5.6	21.3	33.0	23 19.30	2 43.910		
	B. Z., 523, 15 - -	18.0	31.5	45.0	25 31 50	2 35.859	2 12.20	8.051
	Mars, N. P. - - -	15.8	31.3	43.0	27 29.40	2 42.653		
	B. Z., 523, 15 - -	28.3	42.0	55.5	29 41.93	2 35.761	2 12.53	6.892
	Mars, S P. - - -	34.9	50.2	2.0	33 48.45	2 43.870		
	B. Z., 523, 15 - -	47.0	1.3	15.2	36 1.17	2 35.777	2 12.72	8.093
	Mars, S. P. - - -	54.0	9.2	21.8	38 7.90	2 43.815		
	B. Z., 523, 15 - -	7.0	21.0	34.0	40 20.66	2 35.940	2 12.76	7.875
	Mars, N. P. - - -	30.8	45.9	57.9	59 44.35	2 42.611		
	B. Z., 523, 15 - -	45.0		12.5	4 1 58.75	2 36.010	2 14.40	6.601
	Mars, S. P. - - -	24.9	40.3	51.8	4 38.35	2 44.165		
	B. Z., 523, 15 - -		52.3	6.0	6 52.27	2 35.871	2 13.92	8.294
	Mars, N. P. - - -	18.0	33.2	45.5	8 31.75	2 42.672		
	B. Z, 523, 15 - -	31.9	46.3	0.3	10 46.17	2 35.920	2 14.42	6.752
	Mars, S. P. - - -	48.7	3.5	16.2	13 2.45	2 43.860		
	B. Z, 523, 15 - -	2.5	16.0		15 15.97	2 35.791	2 13.52	8.609
	Mars, N. P. - - -	39.2	54.2	6.0	16 52.60	2 42.649		
	B. Z., 523, 15 - -	54.1	7.5		19 7.47	2 35.802	2 14.87	6.847
	Mars, S. P. - - -	20.9	36.2	48.0	23 34.45	2 43.923		
	B. Z., 523, 15 - -	36.0	49.5		25 49.47	2 35.728	2 15.02	8.195
	Mars, N. P - - -	16.0	31.0	43.0	27.29.50	2 42.521		
	B. Z., 523, 15 - -	30.1	44.0		29 43.97	2 35.611	2 14.47	6.910
	Mars, S. P. - - -	18.9	34.3	47.1	31 33.00	2 43.185		
	B. Z., 523, 15 - -	34.3	48.0		33 47.97	2 35.640	2 14.97	7.545
	Mars, N. P. - - -	3.9	19.3	31.3	36 17.60	2 42.691		
	B. Z., 523, 15 - -	20.0	33.5		38 33.47	2 35.657	2 15.87	7.034
	Mars, S. P. - - -	12.2	27.3	39.0	40 25.60	2 43.942		
	B. Z., 523, 15 - -	27.5	41.3		42 41.27	2 35.701	2 15.67	8.241
	Mars, N. P. - - -	11.2	26.3	38.2	44 24.70	2 42.157		
	B. Z., 523, 15 - -	26.5	41.0		46 40.97	2 35.490	2 16.27	6.667
	Mars, S. P. - - -	21.2	36.7	49.1	49 35.15	2 43.819		
	B. Z., 523, 15 - -	38.0	51.2		51 51.17	2 35.506	2 16.02	8.313
	Mars, N. P. - - -	56.5	11.8	24.0	54 10.25	2 42.535		
	B. Z., 523, 15 - -	53.0			56 26.72			
	Mars, N. P. - - -	56.8	12.0	24.0	5 0 0.40	2 42.405		
	B. Z., 523, 15 - -	14.0		41.0	2 27.50	2 35.440	— 2 17.10	— 6.965

RESULTS.

Corr. to Chron. — 1 m. 3.10 s.
.08

	α	δ
	h m. s.	° ′ ″
B. Z, 523, 15,	5 17 48.71	+ 26 26 47.07

Mars, S. P.—B. Z, 523, 15,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	4 1 35.25	— 2 13.73	— 2 2.00
	Δρ	.00	— .04
	ρ —	.24	+ 3.04
Semi-diam.,	+	.61	+ 9.16

Mars, N. P.—B. Z., 528, 15.

	h. m. s.	m. s.	′ ″
Sid. T.	4 24 45.35	— 2 15.11	— 1 44.25
	Δρ	.00	.03
	ρ —	.17	2.96
Semi-diam.,	+	.61	— 9.16

Night misty; star of comparison indistinct.—A. 6.

	In.		°
Bar.	30.342	Therm. Att.	77
		Ex.	24

Between the observations of the 31st December, 1849, and 5th January, 1850, the chronometer had been set forward 4 minutes.

MARS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
.. 5	Mars, S. P. - - -	30.0	45.0	57.0	5 49 43.50	2 43.128		
	B. Z., 523, 15 - -	48.5	3.0		52 3.97	2 34.751		
	Mars, N. P. - - -	21.9	37.2	49.3	54 35.60	2 41.842		
	B. Z., 523, 15 - -	40.2	54.0		56 53.97	2 34.912	— 2 18.37	— 6.930
	Mars, S. P. - - -	43.0	58.3	10.0	58 56.50	2 43.142		
	B. Z., 523, 15 - -	1.2	14.5	28.2	6 1 14.63	2 34.912	2 18.13	8.230
	Mars, N. P. - - -	48.0	4.0	15.3	4 1.65	2 41.707		
	B. Z., 523, 15 - -	7.0	21.0		6 20.97	2 35.039	— 2 19.32	— 6.668
- 9	Mars, N. P. - - -	55.1	10.9	22.8	2 53 8.95	2 55.391		
	B. Z., 523, 15 - -	54.3	8.0	22.0	59 8.10	1 62.939	— 5 59.15	— 22.603
	Mars, S. P. - - -	15.1	30.9	43.1	3 1 29.10	2 56.779		
	B. Z., 523, 15 - -	15.2	29.0	42.0	7 28.73	1 63.064	5 59.63	23.866
	Mars, S. P. - - -	1.8	16.2	28.9	11 15.35	2 56.668		
	B. Z., 523, 15 - -	2.0	15.0	29.0	17 15.33	1 63,145	5 59.98	23.674
	Mars, N. P. - - -	42.2	57.5	9.1	18 55.65	2 55.545		
	B. Z., 523, 15 - -	43.2		10.3	24 56.75	1 63.222	6 1.10	22.474
	Mars, S. P. - - -	33.1	48.3	0.9	26 47.00	2 56.662		
	B. Z., 523, 15 - -	34.1	47.3	1.5	32 47.63	1 63.110	6 0.63	23.703
	Mars, N. P. - - -	2.4	18.0	30.2	35 16.30	2 55.631		
	B. Z., 523, 15 - -	3.7	17.0	31.0	41 17.23	1 63.480	6 0.93	22.302
	Mars, S. P. - - -	13.2	28.1	40.7	44 26.95	2 56.662		
	B. Z., 523, 15 - -	15.5	29.0	42.8	50 29.10	1 63.389	6 2.15	23.424
	Mars, N. P. - - -	31.1	46.2	58.7	54 44.90	2 55.703		
	B. Z., 523, 15 - -	32.7	47.0	0.8	4 0 46.83	1 63.128	6 1.93	22.726
	Mars, S. P. - - -	28.7	44.1	56.2	12 42.45	2 56.857		
	B. Z., 523, 15 - -	30.9	45.0	59.1	18 45.00	1 63.271	6 2.55	23.737
	Mars, N. P. - - -	0.2	15.3	27.7	21 13.95	2 55.880		
	B. Z., 523, 15 - -	3.0	16.5	30.0	27 16.50	1 63.272	6 2.55	22.759
	Mars, S. P. - - -	25.8	41.0	53.5	29 39.65	2 56.780		
	B. Z., 523, 15 - -	29.1	43.0		35 42.91	1 63.265	6 3.26	23.666
	Mars, N. P. - - -	47.1	2.4	14.7	40 0.90	2 55.710		
	B. Z., 523, 15 - -	49.7	3.6	18.0	46 3.77	1 63.190	6 2.87	22.671
	Mars, S. P. - - -	3.2	18.3	30.2	5 16 16.70	2 59.301		
	B. Z., 523, 15 - -	7.1	21.3	35.0	22 21.13	1 66.010	6 4.43	23.441
	Mars, N. P - - -	20.1	36.0	48.1	25 34.10	2 58.122		
	B. Z., 325, 15 - -	24.0	39.0	53.0	31 38.66	1 65.341	— 6 4.56	— 22.932
. 12	B. Z., 396, 127 - -	0.8	14.0	28.1	2 38 14.30	2 35.931	+ 6 30.05	+ 5.012
	Mars, S. P. - - -	30.8	46.1	57.9	44 44.35	2 30.919		
	B. Z., 396, 127 - -	50.0	4.2	17.9	46 4.03	2 35.856		
	Mars, N. P. - - -	20.0	35.1	47.0	52 33.50	2 29.919		

RESULTS.

Corr. Chron. — 0 s. 54.20

	α h. m. s.	δ ° ′ ″
B. Z., 523, 15	5 17 48.70	+ 26 26 47.21

Mars, S. P.—B. Z, 523, 15,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	3 53 45.40	— 6 0.37	— 6 3.44
	Δρ	.00	— .11
	p —	.26	+ 3.03
	Semi-diam., +	.58	+ 8.78

Mars, N. P.—B. Z., 523, 15.

	h. m. s.	m. s.	′ ″
Sid. T.	4 0 22.19	— 6 1.73	— 5 47.98
	Δρ	.00	— .10
	p —	.24	+ 2.98
	Semi-diam., +	.58	— 8.78

The night misty; star of comparison scarce visible.—A. 7.

	In.		°
Bar.	30.164	Ther. At.	76
		Ex.	33

(Continued.)

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Jan. 12	B Z., 396, 127 - -	3. 2	17. 1	31. 0	2 54 17. 10	2 36. 080	+ 6 29. 30	+ 4. 900	
	Mars, S. P. - - -	33. 1	48. 1	59. 7	3 0 46. 40	2 31. 180			
	B. Z., 396, 127 - -	28. 7	42. 0	55. 7	2 42. 13	2 36. 062			Corr. Chron. s. —45. 67
	Mars, N. P. - - -		12. 5	24. 2	9 10. 79	2 29. 872			
	B. Z., 396, 127 - -	54. 2	8. 0	21. 2	11 7. 80	2 36. 061	6 28. 20	4. 840	α h. m. s. δ ° ′ ″
	Mars, S. P. - - -	22. 0	38. 1	50. 0	17 36. 00	2 31. 221			
	B. Z., 396, 127 - -	54. 0	7. 0	20. 8	21 7. 27	2 36. 189	6 28. 28	4. 831	B. Z., 396, 127, 5 3 5. 89 +26 16 13. 62
	Mars, S. P. - - -	22. 1	37. 1	49. 0	27 35. 55	2 31. 358			Mars, S. P—B. Z., 396, 127, Δ α Δ δ
	B. Z, 396, 127 - -	26. 3	40. 0	53. 8	30 40. 03	2 36. 181			h. m. s. m. s. ′ ″
	Mars, N. P. - - -	53. 9	9. 1	21. 3	37 7. 60	2 30. 333			Sid. T. 3 40 09. 58 +6 28. 06 +1 12. 26
	B. Z., 396, 127 - -	9. 2	22. 3	36. 2	39 22. 57	2 36. 225	6 27. 33	4. 966	Δ ρ + .00 .02
	Mars, S. P. - - -	35. 8	51. 0	4. 0	45 49. 90	2 31. 259			p .27 3. 02
	B. Z., 396, 127 - -	44. 2	57. 9	11. 2	47 57. 76	2 36. 340			Semi-diam., + .57 + 8. 59
	Mars, N. P. - - -	12. 9	27. 9	39. 8	54 26. 35	2 30. 449			Mars, N. P.—B. Z., 396, 127.
	B. Z., 396, 127 - -	43. 5	57. 7	11. 0	56 57. 40	2 36. 468	6 27. 65	4. 766	h. m. s. m. s. ′ ″
	Mars, S. P. - - -	11. 2	26. 2	38. 9	4 3 25. 05	2 31. 702			Sid. T. 3 41 44. 69 +6 28. 12 +1 30 78
	B. Z., 396, 127 - -	34. 2	48. 3	2. 0	5 48. 17	2 36. 407			Δ ρ .00 .03
	Mars, N. P. - - -	1. 8	16. 9	29. 0	12 15. 40	2 30. 629			p — .26 + 3. 02
	B. Z, 396, 127 - -	41. 2	55. 2	8. 7	13 55. 08	2 36. 411	6 27. 07	4. 621	Semi-diam., + .57 — 8. 59
	Mars, S. P. - - -	8. 2	23. 5	36. 0	20 22. 10	2 31. 790			Planet blurred; interrupted by clouds continuing the rest of the night.—A. 8.
	B. Z., 396, 127 - -	47. 4	1. 3	15. 3	23 1. 33	2 35. 730			In. °
	Mars, N. P. - - -	14. 8	30. 2	42. 3	29 28. 55	2 29. 839			Bar. 29. 950 Ther. At. 75
	B. Z., 396, 127 - -	2. 5	16. 0	29. 7	42 16. 07	2 35. 635	+ 6 26. 58	+ 4. 676	Ex. 41. 5
	Mars, S. P. - - -	29. 1	43. 5	56. 2	48 42. 65	2 30. 959			
Jan. 14	B. Z., 396, 127 - -	0. 3	12. 7	27. 1	4 10 13. 37	2 35. 009	+ 5 16. 23	— 3. 432	Corr. Chron. s. —37. 94
	Mars, S. P. - - -	16. 2	31. 4	43. 0	15 29. 60	2 38. 441			α h. m. s. δ ° ′ ″
	B. Z., 396, 127 - -	26. 4	40. 5	54. 3	17 40. 40	2 34. 611	5 15. 25	2. 310	B. Z., 396, 127, 5 3 5. 39 +26 16 13. 68
	Mars, N. P. - - -	42. 3	58. 0	9. 0	22 55. 65	2 36. 921			Mars, S. P—B. Z., 396, 127, Δ α Δ δ
	B. Z., 396, 127 - -	12. 1	26. 0	40. 0	32 26. 03	2 27. 066	5 15. 52	3. 723	h. m. s. m. s. ′ ″
	Mars, S. P. - - -	27. 9	43. 1	55. 2	37 41. 55	2 30. 789			Sid. T. 4 25 57. 43 +5 15. 87 —0 54. 98
	B. Z., 396, 127 - -	26. 2	39. 2	53. 5	40 39. 63	2 26. 890	+ 5 14. 97	— 2. 349	Δ ρ .00 — .02
	Mars, N. P. - - -	41. 2	57. 2	8. 0	45 54. 60	2 29. 239			p — .12 + 2. 74
									Semi-diam., + .56 + 8. 43
									Mars, N. P.—B. Z., 396, 127.
									h. m. s. m. s. ′ ″
									Sid. T. 4 33 47. 19 +5 15. 11 —0 35. 80
									Δ ρ .00 — .01
									p — .10 + 2. 69
									Semi-diam., + .56 + 8. 43
									Night very unfavorable.—A. 6.
									In. °
									Bar. 30. 320 Ther. At. 69
									Int. 33
									Ex. 19

MARS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ η	Δ mic.	RESULTS.
850.		s.	s.	s.	h. m s.	w. revs.	m. s.	revs.	
1. 19	Mars, N. P. . . .	9.3		37.0	2 49 23.15	1 40.676			Floating clouds; star of comparison scarce visible.— A. 7.
	B. Z., 405, 6 . . .	10.0	24.3	37.5	53 23.93	2 30.638	— 4 0.80	+ 20.113	
	Mars, S. P. . . .	33.0	48.2	0.0	55 46.50	1 42.018			In. Bar. 30.26 Ther. At. 77° Ex. 30
	B. Z., 405, 6 . . .	33.0	47.0		59 47.00	2 30.428	— 4 0.50	+ 18.561	
1. 22	Mars, S. P. . . .	29.2	44.8	56.7	3 0 42.95	2 37.022			
	B. Z., 405, 6 . . .		9.5	23.4	5 9.45	2 46.031	— 4 26.50	+ 9,009	
	Mars, N. P. . . .	56.8	12.3	24.1	7 10.45	2 35.890			
	B. Z., 405, 6 . . .	24.2	37.5		11 37.45	2 45.978	4 27.00	10.088	
	Mars, S. P. . . .	53.0	8.2	20.6	13 6.80	2 36.870			
	B. Z., 405, 6 . . .	19.0	33.0	47.0	17 33.00	2 46.001	4 26.20	9.131	
	Mars, N. P. . . .	13.2	28.5	41.1	19 27.15	2 36.020			
	B. Z., 405, 6 . . .		53.0	7.2	23 52.95	2 45.920	4 25.80	9.900	
	Mars, S. P. . . .	39.8	54.4	7.0	25 53.40	2 36.892			
	B. Z., 405, 6 . . .	6.0	19.7	33.2	30 19.63	2 45.921	4 26.23	9.029	
	Mars, N. P. . . .	58.0	13.3	25.5	32 11.75	2 35.960			
	B. Z., 405, 6 . . .	24.2	38.2	52.0	36 38.13	2 45.973	4 26.38	10.013	
	Mars, S. P. . . .	0.0	14.8	27.0	38 13.50	2 37.032			
	B. Z., 405, 6 . . .	26.1	40.2		42 40.10	2 46.060	4 26.60	9.030	
	Mars, S. P. . . .	57.7	12.9	25.1	44 11.40	2 37.002			
	B. Z., 405, 6 . . .	24.0	38.0		48 37.90	2 46.009	4 26.50	9.007	
	Mars, N. P. . . .	28.2	43.3	55.2	50 41.70	2 36.038			
	B. Z., 405, 6 . . .	54.2	8.2		55 8.10	2 46.039	4 26.40	10.001	
	Mars, S. P. . . .	52.0	7.0	19.0	57 5.50	2 37.199			
	B. Z., 405, 6 . . .	19.2	33.0		4 1 32.90	2 46.149	4 27.40	8.950	
	Mars, N. P. . . .	26.5	41.2	54.1	4 3 40.30	2 36.091			
	B. Z., 405, 6 . . .	53.0	6.0		8 5.90	2 46.120	4 25.60	10.029	
	Mars, S. P. . . .	36.1	51.3	3.5	16 49.80	2 36.908			Corr. Chron. — 21.22 s.
	B. Z., 405, 6 . . .	2.5	16.2		21 16.10	2 45.865	4 26.30	8.957	
	Mars, N. P. . . .	47.2	2.3	15.0	23 1.10	2 36.059			α δ
	B. Z., 405, 6 . . .	14.1	28.1	41.3	27 27.83	2 45.867	4 26.73	9.808	h. m. s. ° ′ ″ B. Z., 405, 6 5 10 30.06 + 26 5 43.02
	Mars, S. P. . . .	47.1	1.5	15.0	30 1.05	2 36.771			Mars, S. P.—B. Z., 405, 6, Δ α Δ δ
	B. Z., 405, 6 . . .	14.1	28.3	41.5	34 27.96	2 45.699	4 26.91	8.928	h. m. s. m. s. ′ ″ Sid. T. 4 12 50.03 —4 26.52 + 2 17.17
	Mars, N. P. . . .	13.7	28.9	41.3	37 27.50	2 35.916			Δ ρ .00 .04
	B. Z., 405, 6 . . .	40.0	54.1	7.5	42 53.86	2 46.221	4 26.36	10.305	ρ — .16 2.62
	Mars, S. P. . . .	27.1	42.3	54.2	44 40.65	2 36.900			Semi-d. + .52 + 7.79
	B. Z., 405, 6 . . .	53.0	7.2	21.0	49 7.06	2 45.710	4 26.41	8.810	Mars, N. P.—B. Z., 405, 6.
	Mars, N. P. . . .	11.2	25.2	38.1	51 24.65	2 35.776			h. m. s. m. s. ′ ″ Sid. T. 4 18 6.09 — 4 26.29 + 2 32.08
	B. Z., 405, 6 . . .	37.2	51.0	5.0	55 51.06	2 45.616	4 26.41	9.840	Δ ρ .00 .04
	Mars, N. P. . . .	31.0	46.2	59.0	5 35 45.00	2 42.701			ρ — .14 + 2.61
	B. Z., 405, 6 . . .	56.5	11.0	24.0	40 10.50	2 52.400	— 4 25.50	+ 9.699	Semi-d. + .52 — 7.79
									A. 8. In. Bar. 30.10 Ther. At. 73° Ex. 36

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Jan. 22	Mars, N. P. - - -	30.4	45.3	56.5	5 43 43.45	2 42.780			
	B. Z., 405, 6 - - -	56.5	10.5	23.5	48 10.16	2 52.038	— 4 26.71	+ 9.258	
	Mars, S P. - - -	1.8	17.2	28.9	51 15.35	2 43.971			
	B. Z., 405, 6 - - -	37.6	51.0	5.0	55 51.20	2 52.650	4 25.85	8.679	
	Mars, S. P. - - -	25.0	40.3	53.0	6 3 39.00	2 43.892			
	B. Z., 405, 6 - - -	52.0	6.2	19.2	8 5.80	2 52.528	— 4 26.80	+ 8.636	
Jan. 29	Mars, S. P. - - -	58.1	13.1	25.7	3 2 11.90	2 34.398	— 3 28.17	— 7.589	Corr. Chron. — 19.86 s.
	B. Z., 405, 6 - - -	26.2	40.3	53.7	5 40.07	2 26.809			
	Mars, N. P. - - -	28.1	43.0	55.0	8 41.55	2 33.328	3 28.48	6.652	α h. m. s. δ ° ′ ″
	B. Z., 405, 6 - - -	56.1	10.0	24.0	12 10.03	2 26.760			B. Z., 405, 6, 5 10 30.02 +26 5 43.20
	Mars, S. P. - - -	20.0	35.3	48.2	14 34.10	2 34.292	3 28.13	7.595	Mars, S. P.—B. Z., 405, 6, Δ α Δ δ
	B. Z., 405, 6 - - -	48.5	2.1	16.1	18 2.23	2 26.697			h. m. s. m. s. ′ ″
	Mars, N. P. - - -	26.1	41.0	53.2	19 39.65	2 33.367	3 27.90	6.766	Sid. T. 3 13 53.66 —3 27.92 —1 59.36
	B. Z., 405, 6 - - -	54.1		21.0	23 7.55	2 26.600			Δ ρ .00 .04
	Mars, S. P. - - -	41.2	56.0	7.9	25 54.55	2 34.768	3 27.45	8.112	p — .30 + 2.87
	B. Z., 405, 6 - - -		22.0		29 22.00	2 26.656			Semi-diam., + .48 + 7.23
	Mars, N. P. - - -	8.0	23.3	35.5	32 21.75	2 33.149	— 3 29.25	— 6.543	Mars, N. P.—B. Z., 405, 6,
	B. Z., 405, 6 - - -	36.0	51.0		35 51.00	2 26.606			h. m. s. m. s. ′ ″
	Mars, S. P. - - -	42.9	57.7	10.0	3 56 56.49	2 30.010			Sid. T. 3 19 54.45 —3 28.54 —1 42.28
	B. Z., 405, 6 - - -	10.9	24.8	38.4	4 0 24.74	2 22.501			Δ ρ .00 — .03
	Mars, N. P. - - -	17.9	33.8	46.2	3 32.12	2 28.870			p — .28 + 2.75
	B. Z., 405, 6 - - -	45.3	58.7	12.3	6 58.81	2 22.250			Semi-diam., + .48 — 7.23
	Mars, S. P. - - -	49.2	4.3	16.5	4 57 2.85	2 29.425			The times of the last three comparisons are by chronograph. A. 6.
	B. Z., 405, 6 - - -		29.7	43.5	5 0 29.70	2 21.729			In. ° Bar. 30.40 Ther. At. 73

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Feb. 16	Weisse XIII, 458	27.2	39.2		9 25 39.2	2 44.821		
	Hebe		54.0		26 54.0	2 44.819		
	Weisse XIII, 458	6.0	18.2	31.0	32 18.40	2 44.875	+ 1 16.71	+ 18.960
	Hebe		35.2	47.5	33 35.11	1 56.082		
	Weisse XIII, 458	6.2	19.0	31.0	38 18.73	2 44.987	1 17.03	19.166
	Hebe	23.8	35.5	48.0	39 35.76	1 55.990		
	Weisse XIII, 458	14.0	27.0		52 27.00	2 45.391	1 16.20	19.453
	Hebe		43.2	56.0	53 43.20	1 56.105		
	Weisse XIII, 458	32.5	45.0	57.3	10 1 44.70	2 45.422	+ 1 16.70	+ 19.231
	Hebe	49.0	1.2	14.0	3 1.40	1 56.358		
Feb. 26	Weisse XIII, 413	34.2	46.8	59.2	9 55 46.73	3 34.372	+ 1 46.82	+ 8.970
	Hebe			46 0	57 33.55	3 25.402		
	Weisse XIII, 472			56.5	58 44.05	2 28.093	— 1 10.50	— 27.221
	Weisse XIII, 413	1.3	13.5	26.1	10 6 13.63	3 34.410	+ 1 47.42	+ 9.218
	Hebe	48.7		13.4	8 1.05	3 25.192		
	Weisse XIII, 472		11.2	23.0	9 10.93	2 28.152	— 1 9.88	— 26.952
	Weisse XIII, 413	5.7	18.3	31.2	40 18.40	3 34.650	+ 1 47.70	+ 10.071
	Hebe		6.1		42 6.10	3 24.579		
	Weisse XIII, 472	4.2		28.3	43 16.25	2 28.340	— 1 10.15	— 26.151
	Weisse XIII, 413	23.2	35.4	48.0	51 35.53	3 34.549	+ 1 46.44	+ 10.209
	Hebe	9.5	22.1	34.3	53 21.97	3 24.340		
	Weisse XIII, 472	20.8		45.0	54 32.90	2 28.262	— 1 10.93	— 25.990
	Weisse XIII, 413	16.2	28.3	40.8	11 1 28.43	3 34.492	+ 1 46.57	+ 10.270
	Hebe	2.5	15.1	27.4	3 15.00	3 24.222		
	Weisse XIII, 472			38.5	4 26.05	2 28.113	— 1 11.05	— 26.021
March 4	Weisse XIII, 365	27.0	39.1	51.7	9 37 39.27	3 40.980	+ 1 49.00	+ 29.221
	Hebe		28.0	40.8	39 28.27	2 41.671		
	Weisse XIII, 365	29.2	41.8	54.1	42 41.70	3 40.936	1 48.80	29.328
	Hebe	18.1	30.4	43.0	44 30.50	2 41.520		
	Weisse XIII, 365	7.2	19.3	31.5	51 19.33	3 41.068	1 48.10	29.693
	Hebe	55.0	7.3	20.0	53 7.43	2 41.287		
	Weisse XIII, 365	43.2	56.3	8.7	54 56.07	3 40.862	1 48.00	29.423
	Hebe	31.3	43.8	57.1	56 44.07	2 41.351		
	Weisse XIII, 365	35.2	48.1	0.3	10 1 47.87	3 41.220	1 48.06	+ 29.632
	Weisse XIII, 370		11.3	24.0	2 11.32	1 46.062	1 24.61	— 25.607
	Hebe	23.3	36.0	48.5	3 35.93	2 41.502		
	Weisse XIII, 365	28.1	40.4	52.7	9 40.40	3 41.311	1 47.57	+ 30.002
	Weisse XIII, 370		3.0	15.2	10 2.95	1 46.081	1 25.02	— 25.207
	Hebe	15.0	28.2	40.7	11 27.97	2 41.221		
	Weisse XIII, 365	52.3	5.1	17.3	17 4.90	3 41.158	1 47.63	+ 30.125
	Weisse XIII, 370		28.2	40.7	17 28.15	1 46.029	1 24.38	— 25.083
	Hebe	40.2	52.4	5.0	18 52.53	2 40.945		
	Weisse XIII, 365	26.3	39.1	51.2	23 38.87	3 41.061	1 47.13	+ 30.132
	Weisse XIII, 370		1.8	14.2	24 1.72	1 45.848	1 24.28	— 25.160
	Hebe	13.3	26.0	38.7	25 26.00	2 40.841		
	Weisse XIII, 365	5.2		30.4	11 13 17.80	3 40.840	+ 1 46.50	+ 31.311
	Weisse XIII, 370		41.0	53.0	13 41.00	1 45.891	+ 1 23.30	— 23.717
	Hebe	51.6		17.0	15 4.30	2 39.441		

RESULTS.

Feb. 16

Corr. Chron. — 40.59 s.

	α h. m. s.	δ ° ′ ″
Weisse XIII, 458,	13 27 11.93	+ 5 40 53.89

Hebe—Weisse, XIII, 458,

	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	9 46 48.28	+ 1 16.66	+ 4 52.06
		Δρ — .01	.17
		p — .16	+ 2.26

Feb. 26

Corr. Chron. — 26.10 s.

	α h. m. s.	δ ° ′ ″
Weisse XIII, 413,	13 24 46.62	+ 7 7 20.85
Weisse XIII, 472,	13 27 44.07	+ 7 16 39.45

Hebe—Weisse XIII, 413,

	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	10 32 25.13	+ 1 46.99	+ 2 29.81
		Δρ .00	.07
		p — .15	+ 2.25

Hebe—Weisse XIII, 472.

	h. m. s.	m. s.	′ ″
Sid. T.	10 32 25.13	— 1 10.50	— 6 46.78
		Δρ .00	— .19
		p — .15	+ 2.25

March 4

Corr. Chron. — 16.50 s.

	α h. m. s.	δ ° ′ ″
Weisse XIII, 365,	13 22 29.72	+ 7 57 13.00
Weisse XIII, 370,	13 22 52.62	8 11 23.51

Hebe—Weisse, XIII, 365,

	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	10 23 20.02	+ 1 47.63	+ 7 44.55
		Δρ .00	.22
		p — .15	+ 2.27

Hebe—Weisse XIII, 370.

	h. m. s.	m. s.	′ ″
Sid. T.	10 43 25.14	+ 1 23.90	— 6 16.72
		Δρ .00	— .17
		p — .14	+ 2.24

(Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
March 4	Weisse XIII, 365 -	44.1	57.3	9.5	11 19 56.97	3 41.081	+ 1 46.50	+ 31.744
	Weisse XIII, 370 -		20.3	32.7	20 20.07	1 45.890	1 23.40	— 23.526
	Hebe - - - - -		13.7	56.1	21 43.47	2 39.249		
	Weisse XIII, 365 -	42.3	54.7	7.1	27 54.70	3 41.109	1 46.60	+ 31.880
	Weisse XIII, 370 -		19.1	31.3	28 19.00	1 46.032	+ 1 22.30	— 23.276
	Hebe - - - - -	28.8	41.3	53.8	29 41.30	2 39.141		
March 8	Hebe - - - - -		38.9	51.7	9 32 39.07	3 27.226		
	Weisse XIII, 392 -	1.7	14.1	26.7	34 14.17	2 29.762	— 1 35.10	— 27.376
	Hebe - - - - -		15.2	28.0	41 15.43	3 27.210		
	Weisse XIII, 392 -	38.0	50.3	2.7	42 50.33	2 29.897	1 34.90	27.225
	Hebe - - - - -	32.3		57.5	47 44.90	3 27.287		
	Weisse XIII, 392 -	7.4	20.0	32.5	49 19.97	2 29.995	1 35.07	27.304
	Hebe - - - - -	8.2	21.0	33.5	55 20.90	3 27.032		
	Weisse XIII, 392 -	44.0	56.3	9.0	56 56.43	2 30.038	1 35.53	26.906
	Hebe - - - - -	46.1	58.3	11.1	10 57 58.50	3 22.968		
	Weisse XIII, 392 -	23.1	35.3	47.7	59 35.37	2 27.510	1 36.87	25.370
	Hebe - - - - -	15.1	28.0		11 3 28.03	3 22.679		
	Weisse XIII, 392 -			17.0	5 4.57	2 27.553	1 36.54	25.038
	Hebe - - - - -	41.5		6.0	9 53.75	3 22.635		
	Weisse XIII, 392 -	8.5	21.0	33.6	11 21.03	2 27.596	1 37.28	24.951
	Hebe - - - - -	24.5	36.5	49.0	15 36.60	3 22.536		
	Weisse XIII, 392 -	1.4	14.1	26.2	17 13.90	2 27.551	1 37.30	24.907
	Hebe - - - - -	56.3	8.6	41.3	21 8.73	3 22.323		
	Weisse XIII, 392 -	33.5	46.1	58.7	22 46.10	2 27.589	— 1 37.37	— 24.646
March 10	Weisse XIII, 331 -	57.1	9.0	21.7	9 5 9.27	2 29.945	+ 0 33.23	— 24.830
	Hebe - - - - -	30.2	42.3	55.0	5 42.50	3 24.863		
	Weisse XIII, 331 -	54.6	7.1	19.3	8 7.00	2 30.068	0 33.33	24.784
	Hebe - - - - -	27.9	40.2	52.9	8 40.33	3 24.940		
	Weisse XIII, 331 -	11.3	24.0	37.0	12 24.10	2 30.095	0 33.40	24.530
	Hebe - - - - -	45.0	57.5	10.0	12 57.50	3 24.713		
	Weisse XIII, 331 -	58.2	10.5	23.1	16 10.60	2 30.242	0 32.83	24.490
	Hebe - - - - -	31.0	43,2	56.1	16 43.43	3 24.820		
	Weisse XIII, 331 -	58.1	10.3	22.8	20 10.40	2 30.311	0 33.17	24.329
	Hebe - - - - -	31.0	43.6	56.1	20 43.57	3 24.728		
	Weisse XIII, 331 -	14.1	26.5	39.1	23 26.57	2 30.410	0 32.66	24.285
	Hebe - - - - -	47.0	59.2	11.5	23 59.23	3 24.783		
	Weisse XIII, 331 -	23.2	35.6	48.1	26 35.63	2 30.389	0 32.75	24.263
	Hebe - - - - -		8.2	21.0	27 8.38	3 24.740		
	Weisse XIII, 331 -	21.2	34.1	46.3	29 33.86	2 30.338	0 32.84	24.264
	Hebe - - - - -	54.1	7.0	19.0	30 6.70	2 24.690		
	Weisse XIII, 331 -	10.6	23.1	35.3	34 23.00	2 30 426	0 32.70	24.115
	Hebe - - - - -		55.8	8.0	34 55.70	3 24.629		
	Weisse XIII, 331 -	8.0	20.3	32.6	36 20.30	2 30.358	0 32.57	23.929
	Hebe - - - - -	40.3	53.0	5.3	36 52.87	3 24.375		
	Weisse XIII, 331 -	35.2	47.4	0.1	39 47.57	2 30.500	+ 0 32.33	— 23.807
	Hebe - - - - -	7.5	19.7	32.5	40 19.90	3 24.395		

RESULTS.

Corr. Chron. — 10.05 s.

	α h. m. s.	δ ° ′ ″
Weisse XIII, 392,	13 23 55.03	+ 8 49 42.14

Hebe — Weisse XIII, 392,

	Δα h. m. s.	Δδ m. s. ′ ″
Sid. T.	10 31 30.61	— 1 36.22 — 6 39.12
Δρ		.00 .18
p		— .15 + 2.26

Corr. Chron. — 6.83 s.

	α h. m. s.	δ ° ′ ″
Weisse XIII, 331,	13 20 40.52	+ 9 8 6.31

Hebe — Weisse XIII, 331,

	Δα h. m. s.	Δδ m. s. ′ ″
Sid. T.	9 25 2.83	+ 0 32.84 — 6 10.60
Δρ		.01 .23
p		— .19 + 2.37

(Continued.)

HEBE.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
rch 10	Weisse XIII, 331	1.3	13.5	25.8	9 43 13.53	2 30.479	+ 0 32.25	— 23.731	
	Hebe		45.8	58.0	43 45.78	3 24.298			
rch 11	Hebe	26.2	38.5	50.7	8 59 38.47	2 31.280			
	Weisse XIII, 331	28.5	40.0	52.2	59 40.23	2 44.456	— 0 1.76	+ 13.176	
	Hebe	39.7		4.3	9 2 52.00	2 31.312			Corr. Chron. — 5.20 s.
	Weisse XIII, 331	41.2		6.1	2 53.65	2 44.180	0 1.65	12.868	
	Hebe	43.0	55.0	7.2	5 55.07	2 31.356			α δ
	Weisse XIII, 331	44.4	57.0	9.2	5 56.87	2 44.337	0 1.80	12.981	h. m. s. ° ′ ″ Weisse XIII, 331, 13 20 40.53 +9 8 6.30
	Hebe	19.1	31.5	44.0	9 31.53	2 31.287			
	Weisse XIII, 331	20.3	33.0	45.7	9 33.00	2 44.461	0 1.47	13.174	Hebe—Weisse XIII, 331, Δ α Δ δ
	Hebe	38.2	50.2	2.7	11 50.37	2 31.325			h. m. s. m. s. ′ ″ Sid. T. 9 18 46.99 — 0 1.93 + 3 23.83
	Weisse XIII, 331	39.7	52.1	5.0	11 52.27	2 44.422	0 1.90	13.097	Δ ρ .00 + .13
	Hebe	31.5	43.3		17 43.37	2 31.213			p — .20 + 2.38
	Weisse XIII, 331	33.0	45.0	57.5	17 45.17	2 44.559	0 1.80	13.346	
	Hebe	21.2	34.0	46.3	22 33.83	2 31.198			
	Weisse XIII, 331	23.5	36.0	48.3	22 35.93	2 44.505	0 2.10	13.307	
	Hebe	12.2	25.0	37.5	26 24.90	2 31.146			
	Weisse XIII, 331	14.5	27.2	39.6	26 27.10	2 44.512	0 2.20	13.366	
	Hebe	23.1	35.6	48.1	29 35.60	2 31.011			Corr. Chron. — 1 2.83 m. s.
	Weisse XIII, 331	25.5	38.0	50.3	29 37.93	2 44.635	0 2.33	13.624	Hebe—Weisse XIII, 331, Δ α Δ δ
	Hebe	24.2		49.3	32 36.75	2 31.061			h. m. s. m. s. ′ ″ Sid. T. 9 44 27.63 — 0 2.70 + 3 34.94
	Weisse XIII, 331	26.5	39.1	51.4	32 39.00	2 44.742	0 2.25	13.681	Δ ρ .00 + .12
	Hebe	10.2	23.6	37.2	9 40 23.67	2 30.915			p — .18 + 2.37
	Weisse XIII, 331	13.7	26.9	39.6	40 26.73	2 44.796	0 3.06	13.881	
	Hebe	11.8	24.6	36.7	42 24.37	2 30.912			
	Weisse XIII, 331	14.6	27.0	39.2	42 26.93	2 44.802	0 2.56	13.890	
	Hebe	11.9	23.8	36.6	44 24.10	2 30.900			
	Weisse XIII, 331	14.3	26.7	39.2	44 26.73	2 44.823	0 2.63	13.923	
	Hebe	11.7	24.6	37.1	46 24.47	2 30 871			
	Weisse XIII, 331	14.6	27.1	39.0	46 26.90	2 44.935	0 2.43	14.064	
	Hebe	17.7	30.3	42.3	48 30.10	2 30.728			
	Weisse XIII, 331	20.6	32.8	45.4	48 32.93	2 44.927	0 2.83	14.199	
	Hebe	23.8	35.9	48.5	50 36.07	2 30.850			
	Weisse XIII, 331	26.3	38.8	51.2	50 38.77	2 44.801	— 0 2.70	+ 13.951	
rch 19	Weisse XIII, 208	25.2	38.0	50.5	11 10 37.90	1 25.382	+ 2 37.50	— 70.840	
	Hebe	3.0	15.2	28.0	13 15.40	3 36.142			
	Weisse XIII, 208	22.1	35.0	47.5	19 34.87	1 34.230	2 36.25	70.855	
	Hebe		11.0	24.2	22 11.12	3 45.005			
	Weisse XIII, 208	49.3	2.0	15.0	25 2.10	1 34.251	2 36.67	70.624	
	Hebe	26.1	39.0	51.2	27 38.77	3 44.795			
	Weisse XIII, 208	14.8	28.1	40.0	30 27.63	1 34.288	2 35.85	70.434	
	Hebe		3.7	16.1	33 3.48	3 44.642			
	Weisse XIII, 208	14.1	26.7	39.3	43 26.70	1 34.432	2 35.63	69.947	
	Hebe	49.5	2.5	15.0	46 2.33	3 44.299			
	Weisse XIII, 208	20.3	33.7	46.1	48 33.37	1 34.440	+ 2 35.50	— 69.800	
	Hebe	56.3	9.0	21.3	51 8.87	3 44.160			

(Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
1850. March 19	Weisse XIII, 208 .	1.3	13.7	26.1	11 55 13.70	1	34.121	+ 2 35.87	— 69.846
	Hebe	37.2	49.5	2.0	57 49.57	3	43.887		
	Weisse XIII, 208 .	56.1	9.3	21.5	12 2 8.97	1	34.042	2 35.06	69.878
	Hebe	31.3	44.1	56.7	4 44.03	3	43.840		
	Weisse XIII, 208 .	9.3	21.7	34.1	7 21.70	1	34.029	2 35.20	69.710
	Hebe	44.4	57.0	9.3	9 56.90	3	43.659		
	Weisse XIII, 208 .	54.4	7.1	19.6	14 7.03	1	34.129	2 34.85	69.211
	Hebe		42.1	54.3	16 41.88	3	43.260		
	Weisse XIII, 208 .	9.7	22.5	35.0	20 22.40	1	34.021	2 35.20	69.250
	Hebe	45.2	57.5	10.1	22 57.60	3	43.191		
	Weisse XIII, 208 .	43.1	55.6	8.1	25 55.60	1	33.960	2 34.40	69.050
	Hebe	17.5	30.0	42.5	28 30.00	3	42.930		
	Weisse XIII, 208 .	56.1	8.0	20.3	32 8.13	1	33.880	2 33.80	69.151
	Hebe	29.5	42.0	54.3	34 41.93	3	42.951		
	Weisse XIII, 208 .	55.6	8.0	20.0	37 7.87	1	33.981	+ 2 34.63	— 68.876
	Hebe	30.0	42.5	55.0	39 42.50	3	42.777		
March 28	Weisse XIII, 104 .	26.2	38.5	50.8	12 9 38.50	1	42.010	+ 1 5.53	— 64.805
	Hebe	31.3	44.1	56.7	10 44.03	3	46.735		
	Weisse XIII, 104 .	4.8	17.2	30.0	13 17.33	1	41.972	1 5.44	64.781
	Hebe	10.2	23.1	35.0	14 22.77	3	46.673		
	Weisse XIII, 104 .	59.3	11.5	24.3	16 11.70	1	42.039	1 5.30	64.539
	Hebe		17.1	29.3	17 17.00	3	46.498		
	Weisse XIII, 104 .	57.1	9.3	22.0	19 9.47	1	42.086	1 5.55	64.519
	Hebe		15.4	27.0	20 15.02	3	46.525		
	Weisse XIII, 104 .	55.2	7.5	20.2	22 7.63	1	42.019	1 5.04	64.432
	Hebe	0.0	13.0	25.0	23 12.67	3	46.371		
	Weisse XIII, 104 .	28.3	41.0	53.2	24 40.83	1	41.901	1 4.90	64.518
	Hebe	33.5	45.8	57.9	25 45.73	3	46.339		
	Weisse XIII, 104 .	37.1		2.0	27 49.55	1	42.089	1 4.82	64.272
	Hebe	41.9	54.2	7.0	28 54.37	3	46.281		
	Weisse XIII, 104 .	30.2	42.5	55.1	31 42.60	1	41.959	1 4.87	64.291
	Hebe	34.9	47.5	0.0	32 47.47	3	46.170		
	Weisse XIII, 104 .	18.7	31.0	43.7	34 31.13	1	41.958	1 4.24	64.154
	Hebe	23.1	35.2	47.8	35 35.37	3	46.032		
	Weisse XIII, 104 .	14.1	27.0	39.7	37 26.93	1	41.949	1 4.57	64.190
	Hebe	19.1	31.4	44.0	38 31.50	3	46.059		
	Weisse XIII, 104 .	47.3	59.6	12.5	39 59.80	1	42.015	1 3.70	64.243
	Hebe	51.0	3.5	16.0	41 3.50	3	46.178		
	Weisse XIII, 104 .	21.3	33.9	46.2	43 33.80	1	41.975	1 4.15	64.015
	Hebe		37.9	50.5	44 37.95	3	45.910		
	Weisse XIII, 104 .	56.1	8.5	21.0	46 8.53	1	42.078	1 4.24	63.833
	Hebe	0.3	13.0	25.0	47 12.77	3	45.831		
	Weisse XIII, 104 .	30.7	43.5	56.0	48 43.40	1	41.935	1 4.13	63.884
	Hebe	35.1	47.5	0.0	49 47.53	3	45.739		
	Weisse XIII, 104 .	2.7	15.2	27.9	51 15.27	1	41.947	+ 1 4.20	— 63.743
	Hebe	7.0	19.3	32.1	52 19.47	3	45.610		

RESULTS.

Corr. Chron. + 9.56 s.

	α h. m. s.	δ ° ′ ″
Weisse XIII, 208,	13 12 37.91	+10 47 18.68

Hebe—Weisse XIII, 208,		Δ α m. s.	Δ δ ′ ″
Sid. T.	11 59 2.73	+ 2 35.46	—17 54.60
	Δρ	.00	— .38
	ρ	— .02	+ 2.06

Corr. Chron. +26.58 s.

	α h. m. s.	δ ° ′ ″
Weisse XIII, 104,	13 7 3.47	+12 7 40.15

Hebe—Weisse XIII, 104,		Δ α m. s.	Δ δ ′ ″
Sid. T.	12 40 13.27	+1 4.46	—16 26.00
	Δρ	.00	— .34
	ρ	— .03	+ 1.99

(Continued.)

HEBE.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
.850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
rch 28	Weisse XIII, 104 .	32.7	45.1	58.0	12 53 45.27	1 41.933	+ 1 4.33	— 63.798
	Hebe	37.3	49.5	2.0	54 49.60	3 45.651		
	Weisse XIII, 104 .	4.1	16.8	29.5	59 16.80	1 41.859	1 3.97	63.596
	Hebe	8.0	21.0	33.0	12 0 20.67	3 45.375		
	Weisse XIII, 104 .	52.6	5.0	17.6	13 2 5.07	1 41.857	1 3.43	64.465
	Hebe	56.0	8.5	21.0	3 8.50	3 45.242		
	Weisse XIII, 104 .	39.5	52.3	5.0	4 52.27	1 41.840	1 3.56	63.521
	Hebe	43.2	56.0	8.3	5 55.83	3 45.281		
	Weisse XIII, 104 .	36.1	48.8	1.3	7 48.73	1 41.929	+ 1 3.30	— 63.362
	Hebe	39.4	52.1	4.6	8 52.03	3 45.211		
rch 31	Hebe	8.0	21.0	33.5	10 42 20.83	2 41.377		
	Weisse XIII, 104 .	30.5	42.8	56.2	43 43.17	3 42.494	— 1 22.34	+ 31.029
	Hebe	24.5	37.0	49.5	44 37.00	2 41.210		
	Weisse XIII, 104 .	46.7	59.2	11.5	45 59.13	3 42.481	1 22.13	31.183
	Hebe	40.7	53.0	5.0	47 52.90	2 41.170		
	Weisse XIII, 104 .		15.0	27.7	49 15.25	3 42.448	1 22.35	31.190
	Hebe	9.1	21.5	34.1	51 21.57	2 41.159		
	Weisse XIII, 104 .	31.5	44.0	57.0	52 44.17	3 42.578	1 22.60	31.331
	Hebe	0.8	13.0	25.7	54 13.17	2 40.978		
	Weisse XIII, 104 .	23.1	36.1	48.5	55 35.90	3 42.581	1 22.73	31.515
	Hebe	15.2	27.7	40.0	57 27.63	2 40.863		
	Weisse XIII, 104 .	38.5	50.8	3.3	58 50.87	3 42.481	1 23.24	31.530
	Hebe	16.0	28.5	41.2	11 0 28.57	2 40.795		
	Weisse XIII, 104 .	39.2	51.0	3.6	1 51.27	3 42.649	1 22.70	31.766
	Hebe	6.7	19.2	31.5	4 19.13	2 40.718		
	Weisse XIII, 104 .	29.7	42.0	54.6	5 42.10	3 42.600	1 22.97	31.794
	Hebe	19.2	31.5	44.2	8 31.63	2 40.710		
	Weisse XIII, 104 .	42.7	55.0	7.5	9 55.07	3 42.529	1 23.44	31.731
	Hebe	1.5	13.7	26.5	11 13.90	2 40.709		
	Weisse XIII, 104 .	24.7	37.0	49.7	12 37.13	3 42.660	— 1 23.23	+31.863
	Weisse XIII, 69 .	48.5	1.0	13.5	20 1.00	1 49.707	+ 0 33.63	— 21.018
	Hebe		34.7	47.0	20 34.63	2 40.558		
	Weisse XIII, 104 .	46.0	58.5	11.0	21 58.50	3 42.600	— 1 23.87	32.054
	Weisse XIII, 69 .	18.3	30.7	43.4	12 15 30.80	1 45.010	+ 0 30.97	19.754
	Hebe	49.0	2.0	14.3	16 1.77	2 34.597		
	Weisse XIII, 104 .	16.1	28.4	41.0	17 28.50	3 37.617	— 1 26.73	32.932
	Weisse XIII, 69 .	22.2	34.7	47.9	21 34.93	1 44.807	+ 0 30.65	19.569
	Hebe		6.2	18.7	22 5.58	2 34.209		
	Weisse XIII, 104 .	19.5	32.0	44.7	23 32.07	3 37.573	— 1 26.49	33.276
	Weisse XIII, 69 .	45.1	57.3	9.8	28 57.40	1 44.735	+ 0 31.13	19.353
	Hebe	16.0	28.6	41.0	29 28.53	2 33.921		
	Weisse XIII, 104 .	42.0	54.3	7.2	30 54.50	3 37.530	— 1 25.97	33.521
	Weisse XIII, 69 .	38.2	50.3	3.0	34 50.50	1 44.789	+ 0 31.10	19.289
	Hebe		21.5	34.0	35 21.60	2 33.911		
	Weisse XIII, 104 .	35.3	48.1	0.5	36 47.97	3 37.460	— 1 26.37	33.461
	Weisse XIII, 69 .	45.0	57.8	10.2	41 57.67	1 44.895	+ 0 30.56	18.997
	Hebe	15.5	28.2	41.2	42 28.23	2 33.725		
	Weisse XIII, 104 .	43.3	55.7	8.0	43 55.67	3 37.412	— 1 27.44	— 33.599

RESULTS.

Corr. Chron. + 29.12 s.
.16

	α h. m. s.	δ ° ′ ″
Weisse XIII, 104,	13 7 3.49	+12 7 40.34
Weisse XIII, 69,	13 5 6.64	12 21 13.31

Hebe — Weisse XIII, 104,

		Δ α m. s.	Δ δ ′ ″
Sid. T.	11 32 1.76	—1 24.22	+8 15.01
	Δ ρ	.00	.18
	ρ	— .09	+ 2.04

Hebe — Weisse XIII, 69.

		s.	′ ″
Sid. T.	12 22 27.53	+0 31.21	—5 00.55
	Δ ρ	.00	— .10
	ρ	— .04	+ 1.93

(Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850. March 31	Weisse XIII, 69	5.2	18.1	30.2	12 47 17.83	1 44.850	+ 0 30.40	— 18.907
	Hebe	35.5	48.2	1.0	47 48.23	2 33.590		
	Weisse XIII, 104	2.9	15.3	27.9	49 15.37	3 37.426	— 1 27 14	— 33.748
April 2	Hebe	36.3	49.2	0.8	10 23 49.10	2 36.238		
	Weisse XIII, 69		55.2	8.0	24 55.20	3 46.812	— 1 6.10	+ 40.486
	Hebe	12.0		37.5	27 24.75	2 36.262		
	Weisse XIII, 69		31.5	44.0	28 31.50	3 46.772	1 6.75	40.422
	Hebe	36.2	49.1	1.0	32 48.76	2 36.183		
	Weisse XIII, 69	42.3	55.1	7.5	33 54.97	3 46.775	1 6.21	40.504
	Hebe	15.0		40.2	39 27.60	2 36.232		
	Weisse XIII, 59	22.3	34.2	47.2	40 34.57	3 46.842	1 6.97	40.522
	Hebe	34.1	46.2	59.1	45 46.47	2 35.905		
	Weisse XIII, 69	40.7	53.0	5.7	46 53.13	3 46.842	1 6.66	40.849
	Hebe	0.0	12.7	25.8	11 15 12.83	2 35.762		
	Weisse XIII, 69	8.7		33.3	16 21.00	3 47.209	1 8.17	41.359
	Hebe	0.2	12.3	25.5	21 12.67	2 35.487		
	Weisse XIII, 69	8.2	21.0	33.0	22 20.73	3 47.280	1 8.06	41.705
	Hebe	58.1	10.3	23.0	28 10.47	2 31.742		
	Weisse XIII, 69	6.0	19.2	31.3	29 18.83	3 43.761	1 8.36	41.931
	Hebe	30.8		56.0	32 43.40	2 31.735		
	Weisse XIII, 69	39.5	52.0	5.7	33 52.20	3 43.770	1 8.80	41.947
	Hebe	51.5	4.3	17.0	38 4.27	2 31.432		
	Weisse XIII, 69	1.0	13.5	25.8	39 13.43	3 43.613	1 9.16	42.093
	Hebe	50.1	2.5	14.8	51 2.47	2 31.315		
	Weisse XIII, 69	0.2	12.3	25.0	52 12.50	3 43.615	1 10.03	42.212
	Hebe	50.2	2.5	15.0	54 2.57	2 31.395		
	Weisse XIII, 69	0.8	13.5	25.7	55 13.33	3 43.721	1 10.76	42.238
	Hebe	45.1	57.5	10.2	57 57.60	2 31.309		
	Weisse XIII, 69		8.5	21.0	59 8.50	3 43.700	1 10.90	42.303
	Hebe	41.5	54.0	6.5	12 3 54.00	2 31.180		
	Weisse XIII, 69	51.7	4.0	16.5	5 4.07	3 43.620	1 10.07	42.352
	Hebe	19.5	32.1	44.4	7 32.00	2 31.110		
	Weisse XIII, 69	30.2	43.0	55.5	8 42.90	3 43.630	1 10.90	42.432
	Hebe	36.0	48.5	1.0	14 48.50	2 30.778		
	Weisse XIII, 69	47.5	0.1	12.5	16 0.03	3 43.600	1 11.53	42.734
	Hebe	57.2	9.3	22.0	21 9.50	2 30.760		
	Weisse XIII, 69	7.5	20.5	32.8	22 20.26	3 43.552	1 10.76	42.704
	Hebe	10.2	23.5	35.7	26 23.13	2 30.550		
	Weisse XII, 69	21.5	34.2	46.5	27 34.07	3 43.601	— 1 10.94	+ 42.963
April 4	Weisse XII, 1047	43.0			11 39 55.43	1 38.683		
	Weisse XII, 1054	56.0	8.5	20.9	40 8.47	2 38.209	+ 1 24.23	— 18.818
	Hebe	20.3	32.7	45.1	41 32.70	3 27.115		
	Weisse XII, 1054	0.5	13.1	26.0	43 13.20	2 38.181	+ 1 24.37	— 18.768
	Hebe	25.2	37.5	50.0	44 37.57	3 27.037		

RESULTS.

Corr. Chron. + 32.56 s.

	α h. m. s.	δ ° ′ ″
Weisse XIII, 69	13 5 6.66	+ 12 21 13.45

Hebe — Weisse XIII, 69,

	Δ α m. s.	Δ δ ′ ″
Sid. T. 11 30 37.59	— 1 9.45	+10 41.89
Δρ	.00	.23
ρ	— .09	+ 2.01

(Continued.)

HEBE.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
350.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
il 4	Weisse XII, 1054 -	30.2	42.8	55.0	11 47 42.67	2 38.349	+ 1 24.13	— 18.635
	Hebe - - - - -	54.2	7.0	19.2	48 6.80	3 27.072		
	Weisse XII, 1054 -	38.2	51.0	3.0	49 50.73	2 38.072	1 24.44	18.678
	Hebe - - - - -	2.5	15.5	27.5	51 15.17	3 26.838		
	Weisse XII, 1054 -	41.6	54.1	6.5	51 54.07	2 38.108	1 23.96	18.564
	Hebe - - - - -	5.8	18.1	30.2	53 18.03	3 26.760		
	Weisse XII, 1054 -	24.9	38.1	50.0	57 37.67	2 38.090	1 23.93	18.362
	Hebe - - - - -	49.2	1.5	14.1	59 1.60	3 26.540		
	Weisse XII, 1054 -	3.5	16.1	28.5	12 1 16.03	2 38.058	1 23.70	18.304
	Hebe - - - - -	27.1	40.0	52.1	2 39.73	3 26.450		
	Weisse XII, 1054 -	34.3	47.5	59.8	3 47.20	2 38.098	1 23.37	18.316
	Hebe - - - - -	58.0	10.6	23.1	5 10.57	3 26.502		
	Weisse XII, 1054 -			36.0	13 28 23.47	2 36.152	1 20.00	16.696
	Hebe - - - - -			56.0	29 43.47	3 22.936		
	Weisse XII, 1054 -	39.5	51.5	3.0	33 51.20	2 36.181	1 21.10	16.523
	Hebe - - - - -		12.0	24.7	35 12.30	3 22.792		
	Weisse XII, 1054 -	37.2	49.7	1.2	39 49.37	2 36.411	1 20.95	16.418
	Hebe - - - - -		10.3	22.5	41 10.32	3 22.917		
	Weisse XII, 1054 -	31.1	43.3	56.0	45 43.47	2 36.530	1 19.56	16.292
	Hebe - - - - -	50.4	3.0	15.7	47 3.03	3 22.910		
	Weisse XII, 1054 -	41.2		6.8	50 54.00	2 36.410	1 19.67	16.192
	Hebe - - - - -			25.2	52 13.67	3 22.690		
	Weisse XII, 1054 -	5.2	17.5		56 17.50	2 36.567	1 20.10	16.014
	Hebe - - - - -	25.2		50.0	57 37.60	3 22.669		
	Weisse XII, 1054 -	28.1	40.0	53.0	14 2 40.37	2 36.803	+ 1 19.56	— 16.011
	Hebe - - - - -		0.0	12.0	3 59.87	3 22.902		
ril 6	Hebe - - - - -	37.0	49.5		10 35 49.77	2 27.960		
	Weisse XII, 1047 -	41.0	53.5	6.8	35 53.77	2 35.521	— 0 4.00	+ 7.561
	Hebe - - - - -	2.2		26.2	46 14.20	2 28.072		
	Weisse XII, 1047 -	6.5		30.5	46 18.50	2 35.324	0 4.30	7.252
	Hebe - - - - -	30.2		56.5	49 43.35	2 28.062		
	Weisse XII, 1047 -	35.2	48.0	0.3	49 47.83	2 35.689	0 4.48	7.627
	Hebe - - - - -	13.5		38.2	56 25.85	2 27.841		
	Weisse XII, 1047 -	18.1	30.5	43.1	56 30.57	2 35.332	0 4.72	7.491
	Hebe - - - - -	37.5	49.7	2.3	11 4 49.83	2 27.549		
	Weisse XII, 1047 -	41.2	54.1	6.5	4 53.93	2 35.597	0 4.10	8.048
	Hebe - - - - -	2.0	14.7	27.2	24 14.63	2 27.412		
	Weisse XII, 1047 -	7.1	19.2	32.0	24 19.43	2 35.568	0 4.80	8.156
	Hebe - - - - -	2.0	14.5	27.2	36 14.57	2 27.129		
	Weisse XII, 1047 -	7.2	19.5	33.0	36 19.90	2 35.645	0 5.33	8.516
	Hebe - - - - -	17.2	30.1	43.3	39 30.20	2 27.322		
	Weisse XII, 1047 -	23.1	36.0	48.0	39 35.70	2 35.552	0 5.50	8.230
	Hebe - - - - -	59.5	12.1	24.5	44 12.03	2 27.112		
	Weisse XII, 1047 -	4.7	17.2	30.1	44 17.33	2 35.778	0 5.30	8.666
	Hebe - - - - -	30.7	43.5	56.1	45 43.43	2 27.140		
	Weisse XII, 1047 -	36.1	49.7	2.4	45 49.40	2 35.750	— 0 5.97	+ 8.610

RESULTS.

Corr. Chron. +34.61 s.

	α h m. s.	δ ° ′ ″
Weisse XII, 1054	13 0 50.05	+ 12 52 7.90

Hebe—Weisse XII, 1054.

	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	12 46 45.44	+ 1 22.20	— 4 29.06
	Δρ	.00	— .09
	p	— .01	+ 1.92

Corr. Chron. + 36.46 s.

	α h. m. s.	δ ° ′ ″
Weisse XII, 1047,	13 0 37.64	+12 59 44.63

Hebe—Weisse XII, 1047,

	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	11 26 54.23	— 0 5.28	+ 2 6.38
	Δρ	.00	.04
	p	— .09	+ 1.97

HEBE.

DATE.	OBJECTS.	Observed times of transit A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850. April 6	Hebe - - - - -	56.1	8.9		11 48 8.93	2 27.048		
	Weisse XII, 1047 -	2.5	14.9	28.0	49 15.13	2 35.678	— 0 6.20	+ 8.630
	Hebe - - - - -	3.5	16.2	28.7	53 16.13	2 27.010		
	Weisse XII, 1047 -	9.0	22.5	35.0	53 22.17	2 35.640	0 6.04	8.630
	Hebe - - - - -	23.1	35.4	48.3	12 0 35.60	2 26.828		
	Weisse XII, 1047 -	29.6	42 2	54.7	0 42.17	2 35.637	0 6.57	8.809
	Hebe - - - - -	38.1	49.7	3.0	3 50.27	2 26.742		
	Weisse XII, 1047 -	44.5	56.9	9.2	3 56.87	2 35.638	— 0 6.67	+ 8.896
April 13	Weisse XII, 929 -	21.8	34.1	47.4	10 43 34.43	1 37.685	+ 0 40.94	— 47.058
	Weisse XII, 933 -	39.0	51.8		43 51.88	1 36.393		
	Hebe - - - - -	2.5	15.5	28.3	44 15.37	3 24.663		
	Weisse XII, 929 -	51.0	3.2	16.0	59 3.40	1 37.755	0 40.73	46.614
	Weisse XII, 933 -	8.0	21.0		59 20.80	1 36.369		
	Hebe - - - - -	31.5	44.1	56.8	59 44.13	3 24.289		
	Weisse XII, 929 - -	34.3	47.1	59.7	11 3 47.03	1 37.900	0 40.10	46.509
	Hebe - - - - -		27.5	39.5	4 27.13	3 24.329		
	Weisse XII, 929 - -	46.0	58.3	11.0	6 58.43	1 37.921	0 40.45	46.469
	Hebe - - - - -		39.0	51.2	7 38.88	3 24.310		
	Weisse XII, 929 - -	19.5	32.1	44.7	12 32.10	1 37.805	0 39.80	46.430
	Hebe - - - - -	59.5	12.1	24.1	13 11.90	3 24.155		
	Weisse XII, 929 - -	43.2	56.1	8.5	15 55.93	1 37.871	0 39.64	46.338
	Hebe - - - - -	23.0	35.7	48.0	16 35.57	3 24.129		
	Weisse XII, 929 - -	2.0	15.0		18 15.02	1 37.899	0 39.95	46.480
	Hebe - - - - -	42.7	54.7	7.5	18 54.97	3 24.299		
	Weisse XII, 929 - -	31.6	44.1	56.0	22 43.90	1 37.942	0 39.60	46.209
	Hebe - - - - -	11.0	23.5	36.0	22 23.50	3 24.071		
	Weisse XII, 929 - -	13.2	25.7	37.9	29 25.60	1 37.919	0 39.23	46.216
	Hebe - - - - -	52.1	5.0	17.4	30 4.83	3 24.055		
	Weisse XII, 929 - -	3.3	16.2	29.0	34 16.17	1 37.900	0 38.66	46.049
	Hebe - - - - -	42.5	54.7	7.3	34 54.83	3 23.869		
	Weisse XII, 929 - -	13.7	26.3	39.1	38 26.37	1 37.849	0 39.23	45.902
	Hebe - - - - -	53.1	5.6	18.1	39 5.60	3 23.671		
	Weisse XII, 929 - -	28.7	41 2	53.7	43 41.20	1 37.807	0 38.40	45.870
	Hebe - - - - -	7.1	19.7	32.0	44 19.60	3 23.597		
	Weisse XII, 929 - -	11.3	24.1	36.0	48 23.80	1 37.875	0 38.80	45.957
	Hebe - - - - -	50.2	2.5	15.1	49 2.60	3 23.752		
	Weisse XII, 929 - -	51.3	3.7	16.0	55 3.67	1 37.887	+ 0 39.00	— 45.634
	Hebe - - - - -		42.6	55.1	55 42.67	3 23.441		
April 14	Hebe - - - - -	14.2		39.0	11 8 26.60	3 36.601		
	Weisse XII, 929 - -	23.2	35.2	48.0	8 35.40	2 41.740	— 0 8.80	— 24.773
	Hebe - - - - -	49.5		15.2	12 2.35	3 36.445		
	Weisse XII, 929 - -	59.5	11.5		12 11.50	2 41.660	0 9.15	24.697
	Hebe - - - - -	14.2		39.5	17 26.85	3 36.476		
	Weisse XII, 929 - -	24.1		49.2	17 36.65	2 41.741	0 9.80	24.647
	Hebe - - - - -	32.1		57.7	20 44.90	3 36.360		
	Weisse XII, 929 - -	41.7		7.8	20 54.75	2 41.732	— 0 9.85	— 24.540

RESULTS.

Corr. Chron. s. +48.57

	α h. m. s.	δ ° ′ ″
Weisse XII, 929,	12 53 57.04	+13 58 32.6

Hebe—Weisse XII, 929,	Δ α m. s.	Δ δ ′ ″
Sid. T. 11 23 41.46	+0 39.61	—11 51.1
Δ ρ	.00	— .2
ρ	— .09	+ 1.9

Corr. Chron. s. +50.37

	α h. m. s.	δ ° ′ ″
Weisse XII, 929,	12 53 57.05	+13 58 32.7

Hebe—Weisse XII, 929,	Δ α m. s.	Δ δ ′ ″
Sid. T. 11 27 42.60	— 0 9.67	— 6 16.1
Δ ρ	.00	— .1
ρ	— .08	+ 1.9

(Conitnued.)

HEBE.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
50.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
il 14	Hebe - - - - -	16.3		40.9	11 25 28.60	3 36.135		
	Weisse XII, 929 - -	26.1	38.5	51.3	25 38.63	2 41.650	— 0 10.00	— 24.397
	Hebe - - - - -	27.3		52.7	28 40.00	3 36.138		
	Weisse XII, 929 - -	37.2	49.3	2.7	28 49.73	2 41.625	0 9.73	24.425
	Hebe - - - - -	29.7		53.0	34 42.35	3 36.022		
	Weisse XII, 928 - -	39.3	52.0	5.1	34 52.13	2 41.562	0 9.78	24.372
	Hebe - - - - -	54.3		19.4	37 6.85	3 36.121		
	Weisse XII, 929 - -	4.0		29.3	37 16.65	2 41.590	0 9.80	24.443
	Hebe - - - - -	40.7		5.3	39 53.00	3 35.940		
	Weisse XII, 929 - -	50.3	2.6	15.3	40 2.73	2 41.536	0 9.83	24.316
	Hebe - - - - -	48.2		13.2	44 0.70	3 35.782		
	Weisse XII, 929 - -	58.2		23.4	44 10.80	2 41.560	— 0 10.10	— 24.134
ril 15	Hebe - - - - -	4.3	17.1	29.5	11 28 16.97	2 43.388		
	Weisse XII, 929 - -	2.7	15.1	28.0	29 15.26	2 39.749	— 0 58.29	— 3.639
	Hebe - - - - -	48.3	0.7	13.1	33 0.70	2 36.380		
	Weisse XII, 929 - -	47.1	59.3	12.0	33 59.47	2 32.783	0 58.77	3.597
	Hebe - - - - -	33.4	45.1	58.5	36 45.67	2 36.239		
	Weisse XII, 929 - -	32.0	44.3	57.1	37 44.47	2 32.690	0 58.80	3.549
	Hebe - - - - -	3.1	15.4	28.1	39 15.53	2 36.270		
	Weisse XII, 929 - -	2.1	14.3	27.0	40 14.47	2 32.575	0 58.94	3.695
	Hebe - - - - -	44.2	57.1	9.1	42 56.80	2 36.190		
	Weisse XII, 929 - -	43.2	56.0	8.1	43 55.77	2 32.649	0 58.97	3.541
	Hebe - - - - -	21.0	33.3	46.1	46 33.47	2 36.078		
	Weisse XII, 929 - -	19.2	32.5	45.0	47 32.23	2 32.520	0 58.76	3.558
	Hebe - - - - -	4.7	17.1	29.5	50 17.10	2 35.950		
	Weisse XII, 929 - -		16.7	29.1	51 16.70	2 32.550	0 59.60	3.400
	Hebe - - - - -	9.2	22.1	35.0	57 22.10	2 35.767		
	Weisse XII, 929 - -	9.0	21.7	34.1	58 21.60	2 32.439	0 59.50	3.328
	Hebe - - - - -	8.2	20.5	33.3	12 0 20.67	2 35.769		
	Weisse XII, 929 - -	7.7	20.2	33.0	1 20.30	2 32.430	0 59.63	3.336
	Hebe - - - - -	48.1	0.7	13.2	3 0.67	2 35.560		
	Weisse XII, 929 - -	48.0	0.4	13.1	4 0.50	2 32.477	0 59.83	3.083
	Hebe - - - - -	30.4	43.0	55.7	8 43.03	2 35.471		
	Weisse XII, 929 - -	30.2	43.0	56.0	9.43.07	2 32.392	1 0.04	3.079
	Hebe - - - - -	8.5	21.0	33.2	11 20.90	2 35.595		
	Weisse XII, 929 - -	8.7	21.2	33.7	12 21.20	2 32.331	— 1 0.30	— 3.264
pril 15	Hebe - - - - -	32.9	45.0	58.4	12 29 45.44	2 29.585		
	Weisse XII, 929 - -		46.2	58.9	30 46.28	2 26.589	— 1 0.84	— 2.996
	Hebe - - - - -	27.0	39.8	52.3	32 39.71	2 29.509		
	Weisse XII, 929 - -		40.4	53.4	33 40.57	2 26.615	1 0.86	2.894
	933 - -	45.6	57.9	10.5	33 58.02	2 25.095	1 18 31	4.414
	Hebe - - - - -	17.4	29.8	42.4	35 29.85	2 29.440		
	Weisse XII, 929 - -	18.2	30.3	43.4	36 30.61	2 26.521	1 0.76	2.919
	933 - -		48.4	0.9	36 48.42	2 25.181	1 18.57	4.259
	Hebe - - - - -	20.0	32.4	44.9	38 32.45	2 29.398		
	Weisse XII, 929 - -	20.8	33.3	46.0	39 33 39	2 26.568	1 0.94	2.830
	933 - -	38.4	50.9	2.5	39 50.60	2 25.228	— 1 18.15	— 4.170

RESULTS.

Corr. Chron. + 52.90 s.

	α h. m. s.	δ ° ′ ″
Weisse XII, 929,	12 53 57.06	+13 58 32.88

Hebe — Weisse XII, 929,

	Δ α m. s.	Δ δ ′ ″
Sid. T. 11 50 42.37	— 0 59.29	— 0 52.59
Δρ	.00	— .02
p —	.06	+ 1.83

Corr. Chron. + 2.16 s.

	α h. m. s.	δ ° ′ ″
Weisse XII, 929,	12 53 37.06	+ 13 58 32.88
Weisse XII, 933,	12 54 14.75	13 58 53.23

Hebe — Weisse XII, 929,

	Δ α m. s.	Δ δ ′ ″
Sid. T. 12 35 39.62	— 1 0.94	— 0 44.29
Δρ	.00	— .01
p —	.01	+ 1.81

Hebe — Weisse XII, 933.

Sid. T. 12 37 7.03	— 1 18.46	— 1 5.49
Δρ	.00	— .02
p —	.01	+ 1.80

(Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
April 15	Hebe	27.2	39.9	52.5	12 41 49.87	2 29.372		
	Weisse XII, 929 .		41.0	54.0	42 41.17	2 26.599	— 1 1.30	— 2.773
	933 .	46.0	58.8	11.3	42 58.69	2 25.171	— 1 18.82	— 4.201
April 17	Hebe	3.2	15.4	28.0	10 33 15.53	2 35.649		
	Weisse XII, 929 .	34.7	47.5	0.1	35 47.43	3 40.056	— 2 31.90	+ 34.319
	933 .			17.5	36 4.98	3 38.723	2 49.45	32.986
	Hebe	52.3	4.7	17.0	39 4.67	2 35.712		
	Weisse XII, 929 .	24.3	37.5	49.7	41 37.16	3 40.091	2 32.49	34.291
	933 .			17.5	41 54.61	3 38.690	2 49.94	32.891
	Hebe	27.7	40.1	52.7	45 40.17	2 35.529		
	Weisse XII, 829 .	0.7	13.3	26.2	48 13.40	3 39.920	2 33.23	34.303
	933 .		30.3	43.7	48 30.65	3 38.807	2 50.48	33.190
	Hebe	29.4	41.7	54.1	51 41.73	2 35.398		
	Weisse XII, 929 .	1.3	14.0	26.7	54 14.00	3 40.039	2 32.27	34.553
	933 .	19.0		44.3	54 31.65	3 38.479	2 49.92	32.993
	Hebe	39.0	51.4	4.2	56 51.53	2 35.253		
	Weisse XII, 929 .	12.0	24.3	37.1	59 24.47	3 39.872	2 32.94	34.531
	933 .			55.2	59 42.63	3 38.446	2 51.10	33.105
	Hebe	28.1	40.0	52.7	11 2 40.26	2 35.030		
	Weisse XII, 929 .	1.2	13.0	26.2	5 13.47	3 39.831	2 33.21	34.713
	933 .	18.2	30.7	43.0	5 30.63	3 38.400	2 50.37	33.282
	Hebe	4.2	16.7	29.2	7 16.70	2 35.020		
	Weisse XII, 929 .	38.2	50.4	3.5	9 50.70	3 39.755	2 34.00	34.647
	933 .		7.7	21.0	10 8.10	3 38.430	2 51.40	33.322
	Hebe	37.3	49.5	2.3	13 49.70	2 34.940		
	Weisse XII, 929 .	10.5	23.5	36.1	16 23.37	3 39.643	2 33.67	34.615
	933 .			53.5	16 40.32	3 38.270	— 2 50.62	+ 33.242
April 29	Weisse XII. 706 .	20.2	33.1	46.0	12 21 33.10	2 34.350	+ 1 29.47	— 14.800
	4301, B. A. C. . .		37.0	50.0	21 37.00	1 44.038	1 25.57	35.279
	Hebe	50.2	2.5	15.0	23 2.57	2 49.150		
	Weisse XII, 706 .	43.5	56.2		28 56.27	2 34.161	1 29.30	14.824
	4301, B. A. C. . .	48.0	0.5	13.2	29 0.57	1 43.945	1 25.00	35.207
	Hebe	13.0	25.5		30 25.57	2 48.985		
	Weisse XII, 706 .	20.5	33.7	46.0	35 33.40	2 34.142	1 28.40	14.876
	4301, B. A. C. . .		38.0	50.2	35 37.65	1 44.060	1 24.15	35.125
	Hebe	49.3	1.8	14.3	37 1.80	2 49.018		
	Weisse XII, 706 .	23.2		49.0	52 36.10	2 34.225	1 28.65	14.715
	4301, B. A. C. . .	27.9	40.5	53.2	52 40.53	1 44.182	1 24.22	34.925
	Hebe	52.0		17.5	54 4.75	2 48.940		
	Weisse XII, 706 .	45.5	58.2	11.0	13 1 58.23	2 34.170	1 28.00	14.585
	4301, B. A. C. . .	49.7	2.5	15.2	2 2.47	1 44.050	1 23.76	34.872
	Hebe	13.5	26.2	39.0	3 26.23	2 48.755		
	Weisse XII, 706 .	41.3	54.1	6.0	8 53.80	2 34.290	1 27.90	14.630
	4301, B. A. C. . .		58.0	10.7	8 58.10	1 44.301	1 23.60	34.786
	Hebe	9.0	21.8	34.3	10 21.70	2 48.920		
	Weisse XII, 706 .	33.1	46.2	58.3	13 45.87	2 33.910	1 28.40	14.460
	4301, B. A. C. . .	37.2		2.5	14 49.85	1 43.921	+ 1 24.42	— 34.616
	Hebe	1.5	14.2	27.1	16 14.27	2 48.370		

RESULTS.

Corr. Chron. + 54.86 s.

	α h. m. s.	δ ° ′ ″
Weisse XII, 929,	12 53 57.07	+13 58 33.
933,	12 54 14.77	13 58 53.

Hebe — Weisse XII, 929,

		Δα m. s.	Δδ ′
Sid. T.	10 54 42.20	— 2 32.96	+ 8 50
	Δρ	.00	
	ρ —	.11	+ 1

Hebe — Weisse XII, 933.

			′ ″
Sid. T.	10 54 42.20	— 2 50.41	+ 8 29.
	Δρ	.00	.
	ρ —	.11	+ 1.

Corr. Chron. + 1 m 11.25 s.

	α h. m. s.	δ ° ′ ″
Weisse XII, 706,	12 41 19.90	+14 51 17.
4301, B. A. C.	12 41 24.41	+14 56 28.

Hebe — Weisse XII, 706,

		Δα m. s.	Δδ ′ ″
Sid. T.	13 9 50.52	+ 1 28.02	— 3 44.
	Δρ	.00	— .
	ρ +	.02	+ 1.

Hebe — 4301, B. A. C.

			′ ″
Sid. T.	12 51 50.80	+ 1 24.40	— 8 55.
	Δρ	.00	— .
	ρ +	.01	+ 1.

(Continued.)

HEBE.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
150.		s.	s.	s.	h. m. s.	w. rev.	m. s.	rev.
il 29	Weisse XII, 706 - -	43.5	56.3	9.0	13 17 56.27	2 33.960	+ 1 27.13	— 14.529
	Hebe - - - - -	10.5	23.5	36.2	19 23.40	2 48.489		
	Weisse XII, 706 - -	20.8	34.0	47.0	21 33.93	2 33.772	1 27.30	14.647
	Hebe - - - - -	48.7	1.0	14.0	23 1.23	2 48.419		
	Weisse XII, 706 - -	32.1	44.7	57.7	25 44.83	2 33.829	1 28.10	14.486
	Hebe - - - - -		13.1	25.5	27 12.93	2 48.315		
	Weisse XII, 706 - -	37.4	49.7	2.5	29 49.83	2 33.812	1 27.90	14.601
	Hebe - - - - -	5.2	18.0	30.0	31 17.73	2 48.413		
	Weisse XII, 706 - -	30.2	43.0	55.2	33 42.80	2 33.922	1 26.43	14.499
	Hebe - - - - -	56.7	9.0	22.0	35 9.23	2 48.421		
	Weisse XII, 706 - -	9.5	22.0	34.0	40 21.83	2 33.910	+ 1 27.34	— 14.409
	Hebe - - - - -	36.5	49.3	1.7	41 49.17	2 48.319		
il 30	Weisse XII, 706 - -	36.5	49.3	2.0	12 51 49.27	2 36.559	+ 0 52.80	— 7.730
	4301, B. A. C. - -		54.0	6.7	51 53.97	1 46.238	0 47.60	28.218
	Hebe - - - - -	29.0	41.5	54.2	52 41.57	2 44.289		
	Weisse XII, 706 - -	55.0	57.3	9.5	57 57.27	2 36.537	0 52.25	7.718
	4301, B A. C. - -		2.0	14.3	58 2.02	1 46.270	0 47.50	28.152
	Hebe - - - - -		49.3	2.0	58 49.52	2 44.255		
	Weisse XII, 706 - -	38.3	51.2	3.7	13 2 51.07	2 36.312	0 52.25	7.990
	4301, B. A. C - -		55.6		2 55.47	1 46.250	0 47.85	28.219
	Hebe - - - - -		43.3	56.1	3 43.32	2 44.302		
	Weisse XII, 706 - -	37.0	49.2	1.5	7 49.23	2 36.563	0 52.30	7.639
	4301, B. A C. - -	41.0	53.5		7 53.38	1 46.469	0 48.19	27.900
	Hebe - - - - -	29.2	41.5	54.0	8 41.57	2 44.202		
	Weisse XII, 706 - -	38.5		4.1	13 51.30	2 36.625	0 51.53	7.774
	4301, B. A. C. - -	43.2	55.7		13 55.53	1 46.311	0 47.30	28.255
	Hebe - - - - -	30.2	43.0	55.3	14 42.83	2 44.399		
	Weisse XII, 706 - -	37.3		2.1	18 49.70	2 36.719	0 51.70	7.551
	4301, B. A. C. - -		53.7	7.0	18 53.60	1 46.422	0 47.80	28.015
	Hebe - - - - -		41.5	54.2	19 41.40	2 44.270		
	Weisse XII, 706 - -	50.0	2.4	15.1	25 2.50	2 36.774	0 51.00	7.528
	4301, B. A. C. - -	54.2	6.3	19.0	25 6.50	1 46.482	+ 0 47.00	— 27.987
	Hebe - - - - -	41.0	53.4	6.1	25 53.50	2 44.302		
y 1	Weisse XII, 706 - -	29.9	42.3	55.1	12 38 42.43	2 34.160	+ 0 17.07	— 1.989
	Hebe - - - - -	47.0	59.0	12.5	38 59.50	2 36.149		
	Weisse XII, 706 - -	29.2	42.1	54.1	41 41.80	2 34.119	0 17.17	1.993
	Hebe - - - - -			11.7	41 58.97	2 36.112		
	Weisse XII, 706 - -	22.7	35.1	48.2	46 35.33	2 34.253	0 17.22	1.979
	Hebe - - - - -	40.0		5.1	46 52.55	2 36.232		
	Weisse XII, 706 - -	24.3	37.1		49 37.07	2 34.218	0 16.66	1.929
	Hebe - - - - -	40.6	54.1	6.5	49 53.73	2 36.147		
	Weisse XII, 706 - -	57.4	10.4	22.5	52 10.10	2 34.422	0 16.90	1.895
	Hebe - - - - -	13.8		40.2	52 27.00	2 36.317		
	Weisse XII, 706 - -	42.4	55.0		56 54.90	2 34.381	0 17.40	1.871
	Hebe - - - - -	59.7	12.1	25.1	57 12.30	2 36.252		
	Weisse XII, 706 - -	25.2	38.1	51.1	13 0 33.13	2 34.367	+ 0 16.62	— 1.941
	Hebe - - - - -	42.0		7.5	0 54.75	2 36.308		

RESULTS.

Corr. Chron. m. s. + 1 11.24

	α h. m. s.	δ ° ′ ″
Weisse XII, 706,	12 41 19.90	+14 51 17.13
4301, B. A C.,	12 41 24.41	14 56 28.49

Hebe — Weisse XII, 706,	Δ α m. s.	Δ δ m. s.
Sid. T. 13 10 21.77	+ 0 51.90	— 1 58.41
Δρ	.00	— .04
p +	.02	+ 1.67

Hebe — 4301, B. A. C.

	m. s.	′ ″
Sid. T. 13 10 21. 77	+ 0 47.61	— 7 11.99
Δρ	.00	— .14
p +	.02	+ 1.66

Corr. Chron. m. s. + 1 14.04

	α h. m. s.	δ ° ″ ′
Weisse XII, 706,	12 41 19.90	+14 51 17.29

Hebe — Weisse XII, 706,	Δ α m. s.	Δ δ ′ ″
Sid. T. 12 59 19.31	+ 0 16.98	— 0 29.06
Δρ	.00	— .01
p +	.02	+ 1.68

(Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs	m. s.	revs.	
May 1	Weisse XII, 706 - -	8.3		34.1	13 3 21.20	2 34.399	+ 0 16.75	— 1.851	
	Hebe - - - - -	25.2		50.7	3 37.95	2 36.250			
	Weisse XII, 706 - -	20.4	33.1	45.6	5 32.23	2 34.570	0 17.52	1.782	
	Hebe - - - - -	37.0		2.5	5 49.75	2 36.352			
	Weisse XII, 706 - -	23.1	35.5	48.3	9 35.63	2 34.563	0 16.97	1.845	
	Hebe - - - - -	40.0		5.2	9 52.60	2 36.408			
	Weisse XII, 706 - -	7.2		32.1	13 19.65	2 34.790	0 17.00	1.730	
	Hebe - - - - -	24.3		49.0	13 36.65	2 36.520			
	Weisse XII, 706 - -	18.2	31.0		15 30.97	2 34.678	+ 0 16.50	— 1.882	
	Hebe - - - - -	35.0	47.2	0.2	15 47.47	2 36.560			
May 9	Hebe - - - - -	54.0	6.0	19.0	12 10 6.33	2 42.190			
	4301, B. A. C. - -	40.2	52.0	5.0	13 52.40	2 36.360	— 3 46.07	— 5.830	Corr. Chron. m. s. +1 35.12
	Hebe - - - - -	27.1	29.2	52.0	17 39.43	2 42.355			α h. m. s. δ ° ′ ″
	4301, B. A. C. - -	13.0	25.2	38.0	21 25.40	2 36.219	3 45.97	6.136	4301, B. A. C., 12 41 24.45 +14 56 29.60
	Hebe - - - - -	12.7	25.1	37.1	23 24.97	2 42.449			Hebe—4301, B. A. C., Δ α h. m. s. Δ δ ′ ″
	4301, B. A. C. - -	58.2	11.0	23.7	27 10.97	2 36.220	3 46.00	6.229	Sid. T. 12 28 7.13 — 3 45.93 — 1 34.11
	Hebe - - - - -	17.2	29.5	42.0	29 29.57	2 42.322			Δ ρ .00 — .03
	4301, B. A. C. - -	3.3	16.0	28.8	33 16.03	2 36.112	3 46.46	6.210	ρ — .01 + 1.62
	Hebe - - - - -	15.2	28.1	40.6	35 27.96	2 42.288			
	4301, B. A. C. - -	1.3	13.0	25.5	39 13.27	2 36.040	3 45.31	6.248	
	Hebe - - - - -	51.0	4.0	16.5	43 3.83	2 42.162			
	4301, B. A. C. - -	37.1	49.5	2.3	46 49.63	2 36.075	— 3 45.80	— 6.087	
May 11	Weisse XII, 580 - -	14.1	27.2	39.5	12 19 26.93	2 24.555	+ 2 19.17	— 20.344	
	Hebe - - - - -	33.2	46.1	59.0	21 46.10	2 44.899			Corr. Chron. m. s. + 1 25.85
	Weisse XII, 580 - -	34.9	47.2	0.0	30 47.37	2 24.700	2 19.13	20.210	α h. m. s. δ ° ′ ″
	Hebe - - - - -	54.0	6.5	19.0	33 6.50	2 44.910			Weisse XII, 580, 12 34 31.79 +14 58 55.86
	Weisse XII, 580 - -	19.1	31.3	43.0	35 31.13	2 24.700	2 18.20	20.269	Hebe—Weisse XII, 580, Δ α h. m. s. Δ δ ′ ″
	Hebe - - - - -	37.0	49.0	2.0	37 49.33	2 44.969			Sid. T. 12 44 30.81 + 2 18.32 — 5 11.98
	Weisse XII, 580 - -	43.0	55.1	8.1	41 55.40	2 24.622	2 17.73	20.248	Δ ρ .00 — .10
	Hebe - - - - -	0.5	13.0	25.9	44 13.13	2 44.870			ρ + .01 — 1.60
	Weisse XII, 580 - -	13.2	25.8	39.1	47 26.03	2 24.569	2 18.35	20.266	
	Hebe - - - - -	31.7	44.0		49 44.38	2 44.835			
	Weisse XII, 580 - -	34.3	46.5	59.1	52 46.63	2 24.588	2 17.75	20.402	
	Hebe - - - - -	52.0	4.3		55 4.38	2 44.990			
	Weisse XII, 580 - -	59.3	12.0	24.7	57 12.00	2 24.762	+ 2 17.90	— 20.358	
	Hebe - - - - -		30.0	42.5	59 29.90	2 45.120			
May 12	Weisse XII, 580 - -	28.4	40.7	53.5	11 33 40.87	2 27.988	+ 1 58.23	— 23.565	Corr. Chron. m. s. + 1 30.77
	Hebe - - - - -	26.0	39.3	52.0	35 39.10	3 21.641			α h. m. s. δ ° ′ ″
	Weisse XII, 580 - -	55.1	7.5	20.0	38 7.53	2 27.922	1 57.97	23.660	Weisse XII. 580, 12 34 31.79 +14 58 55.93
	Hebe - - - - -	53.0		18.0	40 5.50	3 21.670			Hebe—Weisse XII, 580, Δ α h. m. s. Δ δ ″
	Weisse XII, 580 - -	44.2	57.1	9.2	46 56.83	2 27.908	1 57.60	23.617	Sid. T. 11 59 53.61 +1 57.42 —6 3.04
	Hebe - - - - -	42.0	54.3	7.0	48 54.43	3 21.613			Δ ρ .00 — .12
	Weisse XII, 580 - -	51.6	4.0	17.1	51 4.23	2 27.822	+ 1 57.44	— 23.675	ρ — .02 + 1.61
	Hebe - - - - -	49.1	1.7	14.2	53 1.67	3 21.585			

(Continued.)

HEBE.

DATE.	OBJECTS.	Chronometer times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
ay 12	Weisse XII, 580 - -	55.2	8.9	20.4	11 55 7.83	2 27.890	+ 1 57.55	— 23.535
	Hebe - - - - -		5.8	18.0	57 5.38	3 21.513		
	Weisse XII, 580 - -	52.4	5.0	18.1	59 5.17	2 27.738	1 56.73	23.544
	Hebe - - - - -	18.7	2.0	15.0	12 0 1.90	3 21.370		
	Weisse XII, 580 - -	45.3	57.3	10.0	2 57.53	2 27.767	1 56.45	23.505
	Hebe - - - - -	41.5	54.0		4 53.98	3 21.369		
	Weisse XII, 580 - -	16.3	29.1	41.7	8 29.03	2 27.712	1 57.90	23.835
	Hebe - - - - -	14.1	27.0	59.7	10 26.93	3 21.635		
	Weisse XII, 580 - -	42.1	54.3	7.0	12 54.47	2 27.782	1 57.23	23.629
	Hebe - - - - -	39.4	51.7	4.0	14 51.70	3 21.499		
	Weisse XII, 580 - -	38.4	50.7	3.1	16 50.73	2 27.682	+ 1 57.07	— 23.650
	Hebe - - - - -	35.1	48.0	0.3	18 47.80	3 21.420		
ay 16	Weisse XII, 580 - -	31.7	44.2	57.1	29 44.33	1 32.391	0 44.35	45.722
	Hebe - - - - -		29.0	41.0	30 28.69	2 47.946		
	Weisse XII, 580 - -	7.1	19.4	32.3	38 19.60	1 32.359	0 43.00	45.840
	Hebe - - - - -	50.3	2.5	15.0	39 2.60	2 48.032		
	Weisse XII, 580 - -	8.1	20.3	33.2	46 20.53	1 32.299	0 43.04	45.778
	Hebe - - - - -	51.2	3.5	16.0	47 3.57	2 47.910		
	Weisse XII, 580 - -	18.1		43.0	57 30.55	1 31.452	+ 0 43.05	— 45.254
	Hebe - - - - -	1.0		26.2	58 13.60	2 46.539		
ay 18	Weisse XII, 580 - -	11.2		37.1	13 32 24.15	1 40.618	+ 0 13.85	— 61.672
	Hebe - - - - -	25.7		50.3	32 38.00	3 42.210		
	Weisse XII, 580 - -	25.0		50.2	38 37.60	1 40.569	0 13.15	61.748
	Hebe - - - - -	38.3		3.2	38 50.75	3 42.237		
	Weisse XII, 580 - -	39.2		4.0	43 51.60	1 40.619	0 13.60	61.581
	Hebe - - - - -	52.5		17.9	44 5.20	3 42.120		
	Weisse XII, 580 - -	20.2		45.1	46 32.65	1 40.581	0 13.25	61.702
	Hebe - - - - -	33.3		58.5	46 45.90	3 42.203		
	Weisse XII, 580 - -	49.2		14.1	51 1.65	1 40.453	0 13.10	61.814
	Hebe - - - - -	2.3		27.2	51 14.75	3 42.187		
	Weisse XII, 580 - -	57.3		22.2	55 9.75	1 40.589	0 13.50	61.762
	Hebe - - - - -	10.5		36.0	55 23.25	3 42.271		
	Weisse XII, 580 - -	56.0		21.1	58 8.55	1 40.493	0 12.95	61.875
	Hebe - - - - -	9.0		34.0	58 21.50	3 42.288		
	Weisse XII, 580 - -	4.2		29.5	14 0 16.85	1 40.596	0 13.05	61.696
	Hebe - - - - -	17.5		42.3	0 29.90	3 42.212		
	Weisse XII, 580 - -	11.1		36.2	2 23.65	1 40.517	0 13.25	61.762
	Hebe - - - - -	24.3		49.5	2 36.90	3 42.199		
	Weisse XII, 580 - -	59.3		24.4	5 11.85	1 40.500	+ 0 13.55	— 61.842
	Hebe - - - - -	12.7		38.1	5 25.40	3 42.262		
y 20	Weisse XII, 519 - -	4.2	17.2	29.2	12 6 16.87	2 38.925	+ 3 18.30	+ 2.210
	Hebe - - - - -	22.5	35.0	48.0	9 35.17	2 36.715		
	Weisse XII, 519 - -	1.2	14.0	26.0	13 13.73	2 38.804	+ 3 18.60	+ 2.229
	Hebe - - - - -	20.0	32.0	45.0	16 32.33	2 36.575		

RESULTS.

Corr. Chron. m. s. +1 43.22

	α h. m. s.	δ ° ′ ″
Weisse XII, 580,	12 34 31.78	+14 58 56.43

Hebe — Weisse XII, 580,	Δα m. s.	Δδ ′ ″
Sid. T. 12 45 25.43	+0 43.36	—11 41.60
Δρ	.00	— .23
ρ	+ .01	+ 1.58

Corr. Chron. m. s. +1 37.05

	α h. m. s.	δ ° ′ ″
Weisse XII, 580,	12 34 31.77	+14 58 56.66

Hebe — Weisse XII, 580	Δα m. s.	Δδ ′ ″
Sid. T. 13 53 12.18.	+ 0 13.32	—15 49.00
Δρ	.00	— .32
ρ	+ .11	+ 1.70

(Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
May 20	Weisse XII, 519 .	25.3	37.0	49.3	12 19 37.20	2 38.756	+ 3 18.43	+ 2.034	Corr. Chron. — 1 m. 20.16 s.
	Hebé			8.0	22 55.63	2 36.722			α δ
	Weisse XII, 519 .	1.5	13.7	26.0	28 13.73	2 38.680	3 18.40	2.045	h. m. s. ° ′ ″ Weisse XII, 519, 12 31 3.24 +14 37 56.00
	Hebe	19.7	32.0	44.7	31 32.13	2 36.635			Hebe—Weisse XII, 519, Δ α Δ δ
	Weisse XII, 519 .	10.2	22.7	36.0	41 22.96	2 38.587	+ 3 18.24	+ 1.809	h. m. s. m. s. ′ ″ Sid. T. 12 23 43.13 + 3 18.39 + 0 31.74
	Hebe	28.5		53.9	44 41.20	2 36.778			Δ ρ .00 .01 ρ — .01 + 1.55
May 21	Weisse XII, 519 .	30.2	43.1		14 11 43.23	1 44.022	+ 3 7.20	— 8.640	Corr. Chron. — 1 m. 15.89 s.
	Hebe			3.0	14 50.43	2 22.750			α δ
	Weisse XII, 519 .	48.2	1.0		23 1.13	1 44.050	3 8.37	9.097	h. m. s. ° ′ ″ Weisse XII, 519, 12 31 3.23 +14 37 56.11
	Hebe	57.0		22.0	26 9.50	1 53.147			Hebe—Weisse XII, 519, Δ α Δ δ
	Weisse XII, 519 .	19.4	32.3		28 32.43	1 44.081	3 7.90	9.010	h. m. s. m. s. ′ ″ Sid. T. 14 34 21.36 + 3 7.74 — 2 20.55
	Hebe		40.2	53.0	31 40.33	1 53.091			Δ ρ .00 — .05 ρ + .10 + 1.63
	Weisse XII, 519 .	34.1	47.0		34 47.00	1 44.237	3 7.57	9.082	
	Hebe	42.0	54.2	7.5	37 54.57	1 53.319			
	Weisse XII, 519 .	13.2		38.0	41 25.60	1 44.179	3 7.53	9.345	
	Hebe	20.3	33.4	45.7	44 33.13	1 53.524			
	Weisse XII, 519 .	18.5		43.0	47 30.75	1 44.160	3 7.65	9.459	
	Hebe	26.2	38.3	50.7	50 38.40	1 53.619			
	Weisse XII, 519 .	44.7	57.0		52 57.13	1 44.249	+ 3 8.00	— 9.383	
	Hebe	52.0	5.1	18.1	56 5.13	1 53.632			
May 22	Weisse XII, 519 .	11.0	24.0	36.7	12 56 23.90	1 46.780	+ 2 59.63	— 19.099	Corr. Chron. — 1 m. 14.43 s.
	Hebe	11.0	23.2	36.4	59 23.53	2 35.712			α δ
	Weisse XII, 519 .	25.2	37.9	50.0	13 2 37.70	1 46.838	2 59.80	19.269	h. m. s. ° ′ ″ Weisse XII, 519, 12 31 3.22 +14 37 56.22
	Hebe	25.0	37.5	50.0	5 37.50	2 35.940			Hebe—Weisse XII, 519, Δ α Δ δ
	Weisse XII, 519 .	5.7	17.8	30.0	8 17.83	1 46.801	2 58.70	18.465	h. m. s. m. s. ′ ″ Sid. T. 13 13 24.09 + 2 59.32 — 4 48.24
	Hebe	4.1	16.5	29.0	11 16.53	2 35.099			Δ ρ .00 — .10 ρ + .03 + 1.56
	Weisse XII, 519 .	32.1	44.3	56.8	14 44.40	1 46.920	2 58.77	18.464	
	Hebe	30.4	43.1	56.0	17 43.17	2 35.217			
	Weisse XII, 519 .	19.7	33.1	44.9	20 32.57	1 46.941	2 59.40	18.618	
	Hebe	19.5	32.0	44.4	23 31.97	2 35.392			
	Weisse XII, 519 .	6.1	19.3	31.0	27 18.80	1 46.920	+ 2 59.63	— 18.613	
	Hebe	6.2	18.2	30.9	30 18.43	2 35.366			
May 23	Weisse XII, 519 .	22.7	35.1	47.2	12 59 35.00	1 46.387	+ 2 53.70	— 31.075	Corr. Chron. — 1 m. 12.97 s.
	Hebe	16.4	28.7	41.0	13 2 28.70	2 47.295			α δ
	Weisse XII, 519 .	14.2	26.2	38.7	5 26.36	1 46.275	2 52.90	31.174	h. m. s. ° ′ ″ Weisse XII, 519, 12 31 3.21 +14 37 56.33
	Hebe	6.5	19.3	32.0	8 19.26	2 47.282			Hebe—Weisse XII, 519, Δα Δ δ
	Weisse XII, 519 .	30.2	43.0	55.2	12 42.80	1 46.297	2 53.67	31.199	h. m. s. m. s. ′ ″ Sid. T. 13 14 32.31 + 2 53.31 — 7 59.83
	Hebe	23.7	36.5	49.2	15 36.47	2 47.329			Δ ρ .00 — .16 ρ + .03 + 1.56
	Weisse XII, 519 .	34.3	46.8		18 46.73	1 46.232	2 52.90	31.242	
	Hebe	27.2	39.7	52.0	21 39.63	2 47.307			
	Weisse XII, 519 .	36.2	49.0		27 48.96	1 46.252	+ 2 53.40	— 31.410	
	Hebe	29.7	42.3	55.1	30 42.36	2 47.495			

HEBE.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.	RESULTS.
850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
26	Weisse XII, 519 .	39.6	52.1	4.7	13 19 52.13	1 29.312	+ 2 39.37	— 70.240	
	Hebe	19.2	31.3	44.0	22 31.50	3 39.472			Corr. Chron. — 1 m. 8.34 s.
	Weisse XII, 519 .	13.7	26.1	39.0	24 26.26	1 29.362	2 38.77	70.206	α h. m. s. δ ° ′ ″
	Hebe	52.1	5.0	18.0	27 5.03	3 39.488			Weisse XII, 519, 12 31 3.18 +14 37 56.66
	Weisse XII, 519 .	54.2	6.8	19.2	29 6.67	1 29.252	2 39.03	70.366	Hebe—Weisse XII, 519, Δα m. s. Δδ ′ ″
	Hebe	33.1	45.4	58.6	31 45.70	3 39.538			Sid. T. 13 37 35.63 + 2 38.94 —18 1.35
	Weisse XII, 519 .	54.1	6.2	19.2	33 6.43	1 29.303	2 39.60	70.356	Δρ .00 — .37
	Hebe	33.7	46.1	58.3	35 46.03	3 39.579			ρ + .05 + 1.55
	Weisse XII, 519 .	50.3	3.0	15.7	38 3.00	1 29.339	2 38.86	70.349	
	Hebe	29.2	42.1	54.3	40 41.86	3 39.608			
	Weisse XII, 519 .	51.5	4.7	17.0	43 4.40	1 29.340	2 38.70	70.382	
	Hebe	30.2	43.1	56.0	45 43.10	3 39.642			
	Weisse XII, 519 .	44.6	57.3		47 57.31	1 29.378	2 38.65	70.404	
	Hebe	23.2	36.0	48.7	50 35.96	3 39.702			
	Weisse XII, 519 .	51.3	3.6	17.1	53 4.00	1 29.290	+ 2 38.57	— 70.550	
	Hebe	30.0	42.7	55.0	55 42.57	3 39.760			
y 27	Weisse XII, 519 .	24.2	37.1		53 36.98	1 30.344	+ 2 37.45	— 84.781	
	Hebe	2.0	14.2	27.1	56 14.43	3 55.045			Corr. Chron. — 1 m. 7.14 s.
	Weisse XII, 519 .	7.2	19.4		58 19.72	1 30.383	2 36.65	84.798	α h. m. s. δ ° ′ ″
	Hebe	44.1	56.0	9.0	14 0 56.37	3 55.101			Weisse XII, 519, 12 34 3.17 +14 37 56.76
	Weisse XII, 519 .	0.3	12.7		3 12.73	1 30.361	2 36.70	84.888	Hebe—Weisse XII, 519, Δα m. s Δδ ′ ″
	Hebe	37.1	49.3	1.9	5 49.43	3 55.169			Sid. T. 14 4 33.49 + 2 36.80 +21 44.00
	Weisse XII, 519 .	8.2	21.0	34.0	7 21.06	1 30.361	2 37.20	84.787	Δρ .00 — .46
	Hebe	45.3	58.5	11.0	9 58.26	3 55.068			ρ + .08 + 1.56
	Weisse XII, 519 .	36.3	48.7	1.0	12 48.66	1 30.303	+ 2 36.00	— 84.959	
	Hebe	12.1	24.8	37.1	15 24.66	3 55.182			
16 5	Weisse XII, 553 .	32.2	44.9	57.2	13 32 44.76	3 35.882	+ 1 9.61	+ 16.792	
	Hebe	42.0	54.1	7.0	33 54.37	2 49.002			Corr. Chron. — 0 s. 55.32
	Weisse XII, 553 .	58.2	10.7	23.6	39 10.83	3 35.886	1 8.70	16.666	α h. m. s. δ ° ′ ″
	Hebe	0.7	19.3		40 19.53	2 49.132			Weisse XII, 553, 12 33 11.42 +13 32 21.75
	Weisse XII, 553 .	19.3		44.0	44 31.65	3 35.897	1 9.18	16.749	Hebe—Weisse XII, 553, Δα m. s. Δδ ′ ″
	Hebe	28.0	41.0	53.5	45 40.83	2 49.060			Sid. T. 13 48 42.18 + 1 9.13 + 4 15.96
	Weisse XII, 553 .	34.2	46.7	59.1	51 46.66	3 35.905	1 8.84	16.678	Δρ .00 .09
	Hebe	43.0		8.0	52 55.50	2 49.139			ρ + .07 + 1.54
	Weisse XII, 553 .	32.2	44.0	57.1	58 44.43	3 35.838	1 8.97	16.558	
	Hebe	41.0	53.2	6.0	59 53.40	2 49.192			
	Weisse XII, 553 .	39.3	52.1	4.3	14 3 51.90	3 35.892	+ 1 9.50	+ 16.485	
	Hebe	49.0	1.2	14.0	5 1.40	2 49.319			

IRIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
March 31	Iris	7.2	20.0		13 21 20.00	1 43.453		
	A. Z., 210, 43	51.0	4.0	17.5	23 4.17	1 55.028	— 1 44.17	+ 11.575
	Iris	46.0	59.0	13.0	32 59.33	1 44.262		
	A. Z., 210, 43	30.0	43.4	57.0	34 43.47	1 55.695	1 44.14	11.433
	Iris	1.3	15.0	28.5	37 14.93	1 44.389		
	A. Z., 210, 43	45.5	58.3	12.0	38 58.60	1 55.901	1 43.67	11.512
	Iris	37.5	51.0		41 50.97	1 44.575		
	A. Z., 210, 43	21.0	34.7	48.0	43 34.57	1 56.048	1 43.60	11.473
	Iris		33.0	46.0	45 32.85	1 44.440		
	A. Z., 210, 43	3.5	16.6	30.3	47 16.80	1 56.208	1 43.95	11.768
	Iris	58.5			55 12.18	1 45.033		
	A. Z., 210, 43	42.7	56.5	10.0	56 56.40	1 56.419	1 44.22	11.386
	Iris	21.5	35.0	49.0	14 0 35.17	1 45.180		
	A. Z., 210, 43		19.2	33.1	2 19.32	1 56.629	1 44.15	11.449
	Iris	6.5	20.0		4 19.97	1 45.148		
	A. Z., 210, 43	51.3	4.4	18.0	6 4.57	1 56.750	1 44.60	11.602
	Iris	7.5	21.0	34.5	9 21.00	1 45.555		
	A. Z., 210, 43	51.7	5.0	18.2	11 4.97	1 56.879	1 43.97	11.324
	Iris	52.5	5.0	18.5	14 5.33	1 45.525		
	A. Z., 210, 43	36.0	49.7	3.3	15 49.66	1 56.960	1 44.33	11.435
	Iris		31.5	44.7	16 31.38	1 45.356		
	A. Z., 210, 43	2.0	15.3	29.0	18 15.43	1 57.061	1 44.05	11.705
	Iris	0.1	13.4	27.0	23 13.50	1 45.730		
	A. Z., 210, 43	43.8	58.1	11.2	24 57.70	1 57.270	— 1 44.20	+ 11.540
April 13	5345, B. A. C.	4.2	17.5	30.9	13 31 17.53	1 21.841	+ 1 29.80	— 95.759
	Iris		47.5	0.5	32 47.33	3 57.520		
	5345, B. A. C.	52.0	5.1	19.5	39 5.53	1 22.091	1 29.57	95.949
	Iris	22.0	34.8	48.5	40 35.10	3 57.960		
	5345, B. A. C.	28.2	41.7	55.0	47 41.63	1 22.446	1 29.20	95.832
	Iris	57.0	11.5	24.0	49 10.83	3 58.198		
	5345. B. A. C.	8.5	21.7	35.1	57 21.76	1 22.570	1 29.24	96.081
	Iris	38.0	51.0	4.0	58 51.00	3 58.571		
	5345, B. A. C.	15.2	28.3	42.0	14 6 28.50	1 23.080	1 28.83	95.648
	Iris	43.5	57.5	11.0	7 57.33	3 58.648		
	5345, B. A. C.	19.2	32.0	45.3	23 32.17	1 23.179	1 28.66	95.633
	Iris	47.5	1.0	14.0	25 0.83	3 58.732		
	5345, B. A. C.	22.0	35.3	49.0	35 35.43	1 22.329	1 28.27	95.510
	Iris	50.2	3.7	17.2	37 3.70	3 57.759		
	5345, B. A. C.	17.1	30.5	44.1	46 30.57	1 22.430	1 27.83	95.660
	Iris	45.0	58.5	11.7	47.58.40	3 58.010		
	5345, B. A. C.	51.2	5.1	18.3	15 44 4.87	1 21.031	1 26.50	95.264
	Iris		32.0	45.1	45 31.37	3 56.215		
	5345, B. A. C.	30.7	44.0	57.2	55 44.07	1 21.060	1 26.50	95.122
	Iris	57.0	10.7	24.0	57 10.57	3 56.102		
	5345, B. A. C.	21.0	34.3	48.1	16 3 34.47	1 21.055	+ 1 26.10	— 95.152
	Iris	47.0	0.7	14.0	5 0.57	3 56.151		

RESULTS.

Corr. Chron. + 29.22 s.

	α h. m. s.	δ ° ′ ″
A. Z., 210, 43,	16 6 43.52	—24 44 2.64

Iris — A. Z., 210, 43,		Δα m. s.	Δδ ′ ″
Sid. T.	13 55 40.61	—1 44.09	+2 57.01
	Δρ	.01	.35
	p	— .12	+ 3.24

Corr. Chron. +48.67 s.

	α h. m. s.	δ ° ′ ″
5345, B. A. C.	15 58 53.65	—24 3 12.19

Iris — 5345, B. A. C.		Δα m. s.	Δδ ′ ″
Sid. T.	14 32 22 04	+1 28.23	—24 27.93
	Δρ	— .06	— 2.46
	p	— .09	+ 3.59

IRIS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δη	Δ mic.
850.		s.	s.	s.	h. m s.	w. revs.	m. s.	revs.
ril 14	5345, B. A. C. . .	8.4	22.2	35.1	13 21 21.90	1 24.745	+ 0 57.60	— 89.135
	Iris	6.0	19.5	33.0	22 19.50	3 53.800		
	5345, B. A. C. . .	4.3	17.9	31.0	27 17.40	1 25.180	0 58.30	88.975
	Iris	2.0	16.0	29.1	28 15.70	3 54.075		
	5345, B. A. C. . .	58.1	11.3	25.2	31 11.53	1 25.380	0 57.80	88.886
	Iris	55.4	9.5	23.1	32 9.33	3 54.186		
	5345, B. A. C. . .	41.3	55.0	8.3	38 54.87	1 25.595	0 57.46	88.911
	Iris	39.0	52.0	6.0	39 52.33	3 54.426		
	5345, B. A. C. . .	0.3	13.5	27.1	44 13.63	1 25.680	0 56.60	88.872
	Iris		10.8	24.0	45 10.23	3 54.472		
	5345, B. A. C. . .	55.2	8.4	22.1	50 8.56	1 25.996	0 57.37	88.957
	Iris	52.3	6.0	19.5	51 5.93	3 54.873		
	5345, B. A. C. . .	44.4	58.1	11.2	56 57.90	1 26.078	0 57.00	88.911
	Iris	41.5	55.0		57 54.90	3 54.909		
	5345, B. A. C. . .	47.2	0.3	13.8	14 4 0.43	1 26.343	0 57.10	88.882
	Iris	44.1	57.5	11.0	4 57.53	3 55.145		
	5345, B. A. C. . .	24.2	38.1	51.5	11 37.93	1 26.388	0 57.72	88.884
	Iris	20.0	33.8		12 33.65	3 55.192		
	5345, B. A. C. . .	17.3	30.7	44.3	18 30.76	1 26.468	+ 0 56.57	— 88.967
	Iris	14.1	27.6	40.3	19 27.33	3 55.355		
ril 15	5345, B. A. C. . .	30.2	43.7	57.1	13 22 43.67	1 22.970	+ 0 24.15	— 82.035
	Iris		8.1	21.0	23 7.82	3 44.925		
	5345, B. A. C. . .	48.2	1.6	15.0	27 1.60	1 23.260	0 23.95	82.098
	Iris		25.5	39.0	27 25.55	3 45.278		
	5345, B. A. C. . .	48.7	2.0	15.1	33 1.93	1 23.560	0 24.25	82.081
	Iris		26.5	39.1	33 26.18	3 45.561		
	5345, B. A. C. . .	26.6	40.3		37 40.07	1 23.780	0 24.10	81.831
	Iris	51.0	4.1	17.4	38 4.17	3 45.531		
	5345, B. A. C. . .	31.8	45.0		41 45.08	1 23.840	0 23.65	81.902
	Iris	55.3	8.8	22.1	42 8.73	3 45.662		
	5345, B. A. C. . .	3.2	16.8		48 16.70	1 24.090	0 23.20	81.922
	Iris	27.0	39.5	53.2	48 39.90	3 45.932		
	5345, B. A. C. . .	39.7	53.2		52 53.10	1 24.191	0 23.10	81.959
	Iris	3.1	16.0	29.5	53 16.20	3 46.070		
	5345, B. A. C. . .	21.0	34.2		57 34.35	1 24.272	+ 0 23.15	— 81.883
	Iris	44.0	57.5	11.0	57 57.50	3 46.075		
ril 29	5254, B. A. C. . .	13.4	27.0	40.5	14 25 26.97	1 31.093	+ 4 0.10	— 61.588
	Iris		27.1	40.6	29 27.07	3 32.601		
	5254, B. A. C. . .	3.5	17.3	30.2	31 17.00	1 31.213	3 59.47	61.728
	Iris	3.2	16.2	30.0	35 16.47	3 32.861		
	5254, B. A. C. . .	15.2	28.6	42.1	38 28.63	1 31.150	3 59.00	61.631
	Iris	14.0	27.9	41.0	42 27.63	3 32.701		
	5254, B. A. C. . .	55.2		22.0	46 8.60	1 31.299	+ 3 59.37	— 61.464
	Iris	54.6	8.0	21.3	50 7.97	3 32.683		

RESULTS.

Corr. Chron. +50.47 s.

	α h. m. s.	δ ° ′ ″
5345, B. A. C.	15 58 53.67	—24 3 12.24

Iris—5345, B. A. C.	Δα m. s.	Δδ ′ ″
Sid. T. 13 50 13.11	+0 57.85	—22 45.40
Δρ	— .09	—j 2.61
p	— .13	+ 3.47

Corr. Chron. + 53.00 s.

	α h. m. s.	δ ° ′ ″
5345, B. A. C.	15 58 53.70	—24 3 12.33

Iris—5345, B. A. C.	Δα m. s.	Δδ ′ ″
Sid. T. 13 41 23.76	+ 0 23.69	—20 59.73
Δρ	— .10	— 2.54
p	— .13	+ 3.45

(Continued.)

IRIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
April 29	5254, B. A. C. . .	17.1	30.1	43.0	14 55 30.07	1 31.229	+ 3 58.83	— 61.601
	Iris	15.6	29.1	42.0	59 28.90	3 32.750		
	5254, B. A. C. . .	58.2	12.0	25.6	15 7 11.93	1 31.307	3 58.60	61.459
	Iris	57.1	10.5	24.0	11 10.53	3 32.686		
	5254, B. A. C. . .	37.2	50.0	3.5	16 50.23	1 31.490	3 57.97	61.256
	Iris	35.1	48.0	1.5	20 48.20	3 32.666		
	5254, B. A. C. . .	53.2	6.7	20.0	26 6.63	1 31.287	3 57.74	61.418
	Iris	50.7	4.3	18.1	30 4.37	3 32.625		
	5254, B. A. C. . .	8.2	21.4	35.3	37 21.63	1 31.558	3 57.44	61.991
	Iris	6.1	19.0	32.1	41 19.07	3 32.469		
	5254, B. A. C. . .	9.3	23.0	36.5	45 22.93	1 31.435	+ 3 57.44	— 61.214
	Iris	7.1	20.4	33.6	49 20.37	3 32.569		
May 1	5254, B. A. C. . .	19.4	32.7	46.3	13 38 32.80	1 37.241	+ 2 16.20	— 35.687
	Iris	35.7	49.2	2.1	40 49.00	2 42.751		
	5254, B. A. C. . .	5.3	18.6	31.9	46 18.60	1 36.980	2 15.83	35.178
	Iris	21.0	34.2	48.1	48 34.43	2 41.991		
	5254, B. A. C. . .	22.2	35.3	49.2	52 35.56	1 37.071	2 15.61	35.337
	Iris	38.0	51.3	4.2	54 51.17	2 42.241		
	5254, B. A. C. . .	25.1	38.3	51.3	56 38.23	1 37.219	2 15.80	35.191
	Iris		53.7	7.5	58 54.03	2 42.243		
	5254, B. A. C. . .	4.2	17.5	31.0	14 1 17.57	1 37.227	2 15.15	35.120
	Iris	19.5	32.5		3 32.72	2 42.180		
	5254, B. A. C. . .	32.7	46.0	59.5	6 46.07	1 37.425	2 15.90	35.129
	Iris	47.6	1.3	14.0	9 1.97	2 42.387		
	5254, B. A. C. . .	20.3	33.7	47.2	10 33.73	1 37.498	2 14.84	34.965
	Iris	35.0	48.7	1.9	12 48.57	2 42.296		
	5254, B. A. C. . .	52.3	5.7	19.2	14 5.73	1 37.578	2 14.07	35.033
	Iris	6.5	19.7	33.2	16 19.80	2 42.444		
	5254, B. A. C. . .	32.7	46.2	59.1	17 46.00	1 37.670	2 14.50	34.949
	Iris	46.8	0 7	14.0	20 0.50	2 42.452		
	5254, B. A. C. . .	16.2	29.6	43.0	21 29.60	1 37.750	2 14.33	34.827
	Iris	30.7	44.1	57.0	23 43.93	2 42.410		
	5254, B. A. C. . .	12.7	25.2	39.1	26 25.66	1 37.778	2 14.21	34.799
	Iris	26.7	39.7	53.2	28 39.87	2 42.410		
	5254, B. A. C. . .	48.0	0.7	14.3	34 1.00	1 37.721	2 14.40	34.969
	Iris		15.3	28.6	36 15.40	2 42.523		
	5254, B. A. C. . .	49.3	2.7	16.1	34 2.70	1 37.800	2 13.80	34.785
	Iris	3.0	16.8	29.7	36 16.50	2 42.418		
	5254, B. A. C. . .	8.2	21.5	35.1	37 21.60	1 37.875	2 13.87	34.756
	Iris	22.0	35.3	49.1	39 35.47	2 42.464		
	5254, B. A. C. . .	34.4	47.5	1.5	40 47.80	1 37.960	2 13.46	34.753
	Iris	47.1	1.5	15.2	43 1.26	2 42.546		
	5254, B. A. C. . .	25.1	38.1	51.5	44 38.23	1 38.017	+ 2 13.34	— 34.688
	Iris	38.1	51.6	5.0	14 46 51.57	2 42.538		

RESULTS.

April 29

Corr. Chron. + 1 m. 11.42 s.

	α h. m. s.	δ ° ′ ″
5254, B. A. C.	15 45 2.62	—23 31 34.31

Iris—5254, B. A. C.	Δ α m. s.	Δ δ ′ ″
Sid. T. 15 h. 8 m. 8.48 s.	+ 3 58.60	— 15 45.77
Δρ	.00	— 1.25
ρ	— .04	+ 3.86

May 1

Corr. Chron. + 1 m. 14.16 s.

	α h. m. s.	δ ° ′ ″
5254, B. A. C.	15 45 2.51	—23 31 36.39

Iris—5254, B. A. C.	Δ α m. s.	Δ δ ′ ″
Sid. T. 14 h. 18 m. 41.42 s.	+ 2 14.71	— 8 58.19
Δρ	— .02	— .80
ρ	— .10	+ 3.80

IRIS.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
50. 9	5220, B. A. C.	49.3		16.0	14 13 2.65	2 47.680	+0 7.90	+ 50.887
	Iris	57.1		24.0	13 10.55	1 26.960		
	5220, B. A. C.	16.0	29.1	42.5	24 29.20	3 37.790	0 6.95	51.172
	Iris		36.0	49.5	24 36.15	1 46.698		
	5220, B. A. C.	39.8	53.1	6.3	26 53.07	3 37.683	0 7.23	51.043
	Iris	47.0	0.2	13.7	27 0.30	1 46.720		
	5220, B. A. C.	3.2	17.0	30.0	29 16.73	3 37.782	0 6.95	51.112
	Iris		23.7	37.2	29 23.68	1 46.750		
	5220, B. A. C.	27.1	39.5	53.5	32 40.03	3 37.678	0 7.13	51.046
	Iris	34.0	47.0	0.5	32 47.16	1 46.712		
	5220, B. A. C.	51.9	5.7	18.7	35 5.43	3 37.712	0 6.85	51.272
	Iris		12.4	25.7	35 12.28	1 46.520		
	5220, B. A. C.	32.2	44.7	58.3	37 45.06	3 37.765	0 7.14	51.257
	Iris	38.9	52.3	5.4	37 52.20	1 46.588		
	5220, B. A. C.	56.1	9.2	22.2	41 9.16	3 37.782	0 6.44	51.373
	Iris	2.0	15.7	29.1	41 15.60	1 46.489		
	5220, B. A. C.	2.3	15.3	29.2	43 15.60	3 37.722	0 6.16	51.252
	Iris	8.3	22.0	35.0	43 21.76	1 46.550		
	5220, B. A. C.	33.1	46.4	0.3	45 46.60	3 37.819	0 6.40	51.403
	Iris	39.5	53.0	6.5	45 53.00	1 46.496		
	5220, B. A. C.	41.3	55.1	8.0	15 42 54.80	3 37.910	0 3.90	52.160
	Iris			12.1	42 58.70	1 45.830		
	5220, B. A. C.	22.7		49.7	45 36.20	3 37.882	0 3.58	52.068
	Iris		40.1		45 39.78	1 45.894		
	5220, B. A. C.	12.0	25.3	39.1	16 1 25.46	3 36.012	0 3.04	52.163
	Iris	15.0		42.0	1 28.50	1 43.929		
	5220, B. A. C.	49.0	2.5	15.0	5 2.16	3 36.110	0 2.84	52.180
	Iris	51.6	5.1	18.3	5 5.00	1 44.010		
	5220, B. A. C.	19.7	33.1	46.4	7 33.06	3 36.060	0 2.70	52.301
	Iris	22.1	36.0	49.2	7 35.76	1 43.839		
	5220, B. A. C.	24.3	38.0		9 37.68	3 36.097	0 2.65	52.348
	Iris	27.1	40.7		9 40.33	1 43.819		
	5220, B. A. C.	7.2	20.3		14 20.08	3 35.960	+ 0 3.00	+ 52.302
	Iris	10.5	23.0		14 23.08	1 43.738		
y 12	A. Z., 387, 6	38.3	51.9	5.2	13 45 51.80	3 40.601	+ 0 5.66	+ 24.123
	Iris	44.1	57.6	10.7	45 57.66	2 46.390		
	A. Z., 387, 6	37.6	51.3	4.0	47 50.96	3 40.711	0 5.40	24.294
	Iris	43.1	56.5	9.5	47 56.36	2 46.329		
	A. Z., 387, 6	18.0	31.3	44.3	49 31.20	3 40.779	0 5.23	24.372
	Iris	23.4	36.7	49.2	49 36.43	2 46.319		
	A. Z., 387, 6	54.2	7.5	21.0	52 7.56	3 40.845	0 5.50	24.347
	Iris	59.7	13.2	26.3	52 13.06	2 46.410		
	A. Z., 387, 6	47.5	0.7	14.3	54 0.85	3 40.880	0 4.83	24.343
	Iris	52.3	5.7	19.2	54 5.73	2 46.449		
	A. Z., 387, 6	2.3	15.7	29.2	13 56 15.73	3 40.937	+ 0 5.10	+ 24.418
	Iris	7.5	21.0	34.0	56 20.83	2 46.431		

RESULTS.

Corr. Chron. + 1 m. 35.32 s.

	α h. m. s.	δ ° ′ ″
5220, B. A. C.	15 39 35.55	—23 21 57.15

Iris — 5220, B. A. C.	Δα m. s.	Δδ ′ ″
Sid. T. 15 10 50.84	+ 0 5.34	+ 13 13.23
Δρ	+ .01	1.01
ρ	— .03	+ 3.93

(Continued.)

IRIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
1850.		s	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
May 21	Iris	27.2	40.3		15 41 40.26	1	46.109		
	(° 5)	15.7	29.2	42.0	42 28.96	3	35.430	— 0 48.70	+ 49.401
	Iris	47.0	0.2		46 0.36	1	46.036		
	(° 5)	34.9	48.5	2.0	46 48.46	3	35.529	0 48.10	49.573
	Iris	13.2	26.2	39.8	50 26.40	1	46.000		
	(° 5)	2.1	15.3	28.5	51 15.30	3	35.400	0 48.90	49.480
	Iris	37.2	50.2	3.5	54 50.30	1	45.812		
	(° 5)	26.1	39.7	53.0	55 39.60	3	35.351	0 49.30	49.619
	Iris	41.0	54.2	7.0	16 1 54.06	1	45.622		
	(° 5)	30.5	43.2	57.2	2 43.63	3	35.192	— 0 49.57	+ 49.650
May 23	Iris	15.2	28.1	41.0	15 57 28.10	3	26.782		
	(° 6)	42.7	56.1	9.2	59 56.00	3	44.538	— 2 27.90	+ 17.756
	Iris	19.1	32.1	45.2	16 1 32.13	3	26.615		
	(° 6)	46.5	0.1	13.4	4 0.00	3	44.407	2 27.87	17.792
	Iris	18.2	31.5	44.1	7 31.27	3	26.670		
	(° 6)	47.0	0.0	13.1	10 0.03	3	44.415	2 28.76	17.745
	Iris	27.0	40.3	53.6	11 40.30	3	26.541		
	(° 6)	55.3	9.0	22.1	14 8.80	3	44.410	2 28.50	17.869
	Iris	1.3	14.6	28.0	16 14.63	3	26.380		
	(° 6)	30.2	43.0	56.0	18 43.06	3	44.370	2 28.43	17.990
	Iris	36.3	49.7	2.7	20 49.56	3	26.142		
	(° 6)	5.3	18.7	32.0	23 18.66	3	44.150	— 2 29.10	+ 18.008
May 26	Iris	29.4	42.5	55.1	15 1 42.33	3	42.678		
	A. Z., 209, 54	10.3	23.2	36.3	2 23.26	1	27.800	— 0 40.93	— 74.958
	Iris	29.3	42.3	56.0	3 42.53	3	42.722		
	A. Z., 209, 54	10.6	23.2	36.8	4 23.53	1	27.772	0 41.00	75.030
	Iris	27.5	41.0	54.0	5 40.83	3	42.609		
	A. Z, 209, 54	9.0	22.0	35.1	6 22.03	1	27.771	0 41.20	74.918
	Iris	30.5	43.5	57.0	8 43.66	3	42.693		
	A. Z., 209, 54	11.7	24.3	38.3	9 24.26	1	27.821	0 40.60	74.952
	Iris	27.1	40.0	53.1	10 40.06	3	42.603		
	A. Z, 209, 54	8.3	21.0	34.7	11 21.33	1	27.834	0 41.27	74.849
	Iris	14.8	28.0	41.3	12 28.03	3	42.729		
	A. Z., 209, 54	55.5	9.0	22.1	13 8.86	1	27.921	0 40.83	74.888
	Iris	50.3	4.1	17.0	15 3.80	3	42.643		
	A. Z., 209, 54	32.2	45.7	59.0	15 45.62	1	27.950	0 41.80	74.773
	Iris	15.4	29.2	42.0	17 28.86	3	42.602		
	A. Z, 209, 54	57.2	9.7	23.1	18 10.00	1	27.960	0 41.14	74.722
	Iris	24.1	37.2	50.7	19 37.33	3	42.695		
	A. Z, 209, 54	6.0	19.1	32.5	20 19.20	1	27.995	0 41.87	74.780
	Iris	20.7	33.1	46.6	21 33.46	3	42.729		
	A. Z., 209, 54	1.3	15.3	29.1	22 15.57	1	28.050	0 42.11	74.759
	Iris	57.3	10.6	24.1	24 10.66	3	42.651		
	A. Z., 209, 54	39.7	52.7	5.9	24 52.77	1	28.137	0 42.11	74.594
	Iris	13.0	26.0	39.0	26 26.00	3	42.767		
	A. Z, 209, 54	55.3	8.0	21.0	27 8.10	1	28.189	— 0 42.10	— 74.658

RESULTS.

Corr. Chron. — 1 12.83 (m. s.)

	α (h. m. s.)	δ (° ′ ″)
(° 6)	15 28 7.02	—22 6 5.95

Iris—(° 6)		Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	16 7 59.82	— 2 28.43	+ 4 34.50
	Δ ρ	.00	+ .32
	ρ +	.04	+ 3.60

Corr. Chron. — 1 8.11 (m. s.)

	α (h. m. s)	δ (° ′ ″)
A. Z., 209, 54,	15 23 28.68	—21 27 6.08

Iris—A. Z., 209, 54,		Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	15 37 10.71	—0 42.37	—19 4.60
	Δ ρ	.00	— 1.31
	ρ +	.02	+ 3.90

(Continued.)

IRIS.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
50. 26	Iris	27.3	40.3	54.0	15 28 40.52	3 42.727		
	A. Z., 209, 54	9.2	22.6	36.0	29 22.60	1 28.232	— 0 42.08	— 74.575
	Iris	58.3		24.7	58 11.50	3 44.486		
	A. Z., 209, 54	41.5	54.3	7.5	58 54.43	1 30.376	0 42.93	74.190
	Iris	12.3	25.1	38.7	16 0 25.37	3 44.302		
	A. Z., 209, 54	55.2	8.7	22.1	1 8.66	1 30.201	0 43.29	74.181
	Iris	31.2	44.3	57.1	2 44.20	3 44.045		
	A. Z, 209, 54		27.7	41.0	3 27.85	1 30.010	0 43.65	74.115
	Iris	38.7	51.8	0.5	5 51.83	3 44.036		
	A. Z., 209, 54	22.1	35.0	48.3	5 35.13	1 29.995	0 43.30	74.121
	Iris	48.5	2.3	14.7	7 1.83	3 43.981		
	A. Z., 209, 54	32.3	45.0	58.0	7 45.10	1 29.943	0 43.27	74.118
	Iris	14.0	27.3	40.7	9 27.33	3 43.860		
	A. Z., 209, 54		11.2	24.6	10 11.23	1 29.923	0 43.90	74.017
	Iris	9.2	22.7	35.9	12 22.60	3 43.622		
	A. Z., 209, 54	53.1	6.3	19.6	13 6.33	1 29.709	0 43.73	73.993
	Iris	19.4	32.1	45.5	14 32.33	3 43.577		
	A. Z., 209, 54	3.2	16.0	29.1	15 16.10	1 29.679	0 43.77	73.978
	Iris	16.3	29.1	42.5	16 29.30	3 43.499		
	A. Z., 209, 54	0.5	13.2	26.1	17 13.26	1 29.631	0 43.96	73.948
	Iris	17.9	31.0	43.9	18 30.93	3 43.409		
	A. Z., 209, 54	1.7	14.3	28.1	19 14.70	1 29.713	— 0 43.77	— 73.776
27	Iris	55.8	9.1	22.0	15 23 8.96	3 39.498		
	A. Z., 209, 64	35.2	48.0	1.3	24 48.16	1 45.107	— 1 39.20	— 54.471
	Iris	24.1	37.3	50.2	26 37.20	3 39.421		
	A. Z., 209, 64	3.7	16.9	29.7	28 16.76	1 45.096	1 39.56	54.405
	Iris	10.0	23.0	36.0	29 23.00	3 39.408		
	A. Z., 209, 64	49.4	2.5	15.7	31 2.53	1 45.094	1 39.53	54.394
	Iris	57.7	11.0	24.0	32 10.90	3 39.327		
	A. Z., 209, 64	37.3	50.6	3.1	33 50.33	1 45.047	1 39.43	54.360
	Iris	20.3	33.0	47.0	35 33.43	3 39.254		
	A. Z., 209, 64	0.2	13.2	26.7	37 13.37	1 45.101	1 39.94	54.233
	Iris	17.2	30.1	43.0	38 30.10	3 39.252		
	A. Z., 209, 64	57.4	10.2	23.2	40 10.27	1 45.018	1 40.17	54.314
	Iris	31.3	44.5	57.7	41 44.50	3 39.189		
	A. Z., 209, 64	10.9	24.1	37.2	43 24.06	1 44.980	1 39.56	54.289
	Iris	29.7	43.1	56.0	44 42.93	3 39.028		
	A. Z., 209, 64	9.7	23.1	35.9	46 22.90	1 44.978	1 39.97	54.130
	Iris	17.0	30.0	43.2	47 30.06	3 38.992		
	A. Z., 209, 64	57.1	10.2	23.4	49 10.23	1 44.922	1 40.17	54.150
	Iris	7.4	20.9	33.9	50 20.73	3 38.933		
	A. Z, 209, 64	48.1	1.3	14.3	52 1.23	1 44.935	1 40.50	54.078
	Iris	46.0	59.5	12.9	53 59.46	3 38.933		
	A. Z., 209, 64	26.9	40.1	53.2	55 40.06	1 44.970	1 40.60	54.043
	Iris	34.2	47.5	0.7	56 47.80	3 38.808		
	A. Z., 209, 64	14.7	28.1	41.0	58 27.93	1 44.920	— 1 40.13	— 53.968

RESULTS.

Corr. Chron. — 1 m. 6.94 s.

	α h. m. s.	δ ° ′ ″
A. Z., 209, 54	15 23 28.68	— 21 27 6.11

Iris—A. Z, 209, 54,	Δ α m s	Δ δ ′ ″
Sid. T. 15 42 6.50	— 1 40.02	—13 52.90
Δρ	.00	— .95
ρ +	.04	+ 3.91

(Continued.)

IRIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
May 27	Iris	26.3	39.7	52.7	15 59 39.56	3 38.723		
	A. Z., 209, 64	7.2	20.4	33.7	16 1 20.43	1 44.840	— 1 40.87	— 53.963
	Iris	46.3	59.5	12.7	4 59.50	3 38.592		
	A. Z., 209, 64	27.3	40.2	53.0	6 40.17	1 44.793	— 1 40.67	— 53.879
June 3	Iris	15.8	29.0	42.0	35 28.93	3 29.920		
	A. Z., 209, 48	12.7	25.4	38.5	37 25.53	1 36.595	— 1 56.60	— 53.405
	Iris	21.3		47.5	38 34.40	3 30.120		
	A. Z., 209, 48	18.3	30.7	44.0	40 31.00	1 36.623	1 56.60	53.577
	Iris	31.0	43.8	58.0	41 44.26	3 29.951		
	A. Z., 209, 48	28.3		54.3	43 41.30	1 36.551	1 57.04	53.480
	Iris	41.2	54.4	7.5	47 54.36	3 30.032		
	A. Z, 209, 48	37.3	50.7	3.8	49 50.60	1 36.899	1 56.24	53.213
	Iris	55.3	8.2	21.2	50 8.23	3 29.820		
	A. Z, 209, 48	52.0	5.0	18.2	52 5.06	1 36.539	1 56.83	53.361
	Iris	58.7	11.3	24.5	53 11.50	3 29.901		
	A. Z., 209, 48	55.5	8.7	21.7	55 8.63	1 36.520	1 57.13	53.461
	Iris	46.1	59.0	12.0	57 59.03	3 29.650		
	A. Z., 209, 48	43.5	56.2	9.7	59 56.46	1 36.619	1 57.43	53.111
	Iris	3.5	16.1	29.5	17 0 16.36	3 29.829		
	A. Z., 209, 48	59.7	13.4	26.2	2 13.10	1 36.555	1 57.74	53.354
	Iris	7.7	20.8	34.3	3 20.93	3 29.682		
	A. Z., 209, 48	5.5	18.3	31.5	5 18.4[illegible]	1 36.550	1 57.50	53.212
	Iris	57.3	10.6	23.7	8 10.53	3 29.590		
	A. Z., 209, 48	55.1	7.9	21.0	10 8.00	1 36.579	— 1 57.47	— 53.091
June 4	Iris	14.7		41.0	16 27 27.85	2 43.204		
	A. Z., 209, 48	1.0	14.2	27.0	30 14.06	1 39.452	— 2 46.21	— 33.919
	Iris	9.2	22.0	35.2	33 22.13	2 43.103		
	A. Z., 209, 48	55.2	8.5	21.2	36 8.30	1 39.370	2 46.17	33.900
	Iris	2.7	15.8	29.0	37 15.83	2 42.995		
	A. Z., 209, 48	49.2	2.1	15.3	40 2.20	1 39.430	2 46.37	33.732
	Iris	34.1	47.0	0.0	41 47.03	2 42.900		
	A. Z, 209, 48	21.2	34.1	47.2	44 34.16	1 39.355	2 47.13	33.712
	Iris	51.5	4.7	17.5	46 4.56	2 42.816		
	A. Z., 209, 48	38.2	51.7	4.2	48 51.36	1 39.356	2 46.80	33.627
	Iris	8.2	20.7	34.1	50 21.00	2 42.520		
	A. Z, 209, 48	54.3	7.7	21.2	53 7.73	1 39.302	— 2 46.73	— 33.385
June 11	Iris	49.7	3.2	16.2	15 54 3.03	2 39.251		
	A Z., 208, 52		46.5	59.5	54 46.33	3 39.242	— 0 43.30	+ 29.903
	Iris	57.1	10.7	23.1	59 10.30	2 39.037		
	A. Z., 208, 52	41.5	54.3	7.2	59 54.33	3 39.319	0 44.03	30.194
	Iris	30.5	44.1	57.1	16 0 43.90	2 39.018		
	A. Z, 208, 52	15.2	28.3	41.3	1 28.26	3 39.291	0 44.36	30.185
	Iris	17.5	30.4	42.8	2 30.26	2 39.078		
	A. Z., 208, 52	1.0	14.7	28.1	3 14.60	3 39.300	— 0 44.34	+ 30.134

RESULTS.

Corr. Chron. —0 s. 57.93

	α h. m. s.	δ ° ′ ″
A. Z., 209, 48,	15 17 27.13	—20 50 56.99

Iris—A. Z., 209, 48,		Δ α m. s.	Δ δ ′ ″
Sid. T.	16 50 42.92	— 1 57.06	—13 39.60
	Δρ	— .01	— .91
	p	+ .04	+ 3.86

Corr. Chron. —0 s. 56.38

	α h. m. s.	δ ° ′ ″
A. Z., 209, 48,	15 7 27.13	—20 50 57.01

Iris—A. Z., 209, 48,		Δ α m. s.	Δ δ ′ ″
Sid. T.	16 38 26.69	— 2 46.57	— 8 38.16
	Δρ	— .01	— .63
	p	+ .08	+ 3.76

Corr. Chron. —0 s. 47.58

	α h. m. s.	δ ° ′ ″
A. Z., 208, 52,	15 10 7.34	—20 33 7.49

Iris—A. Z., 208, 52,		Δ α m. s.	Δ δ ′ ″
Sid. T.	16 4 56.81	— 0 44.36	+ 7 43.76
	Δρ	+ .01	.51
	p	+ .06	+ 3.70

(Continued.)

IRIS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
ıe 11	Iris - - - - - -	48.2	1.3	14.1	16 5 1.20	2 39.042		
	A. Z., 208, 52 - -	32.4	45.7	58.7	5 45.60	3 39.240	— 0 44.40	+ 30.110
	Iris - - - - - -	17.3	30.0	42.9	6 30.06	2 39.003		
	A Z., 208, 52 - -	1.4	14.7	27.9	7 14.67	3 39.281	0 44.61	30.190
	Iris - - - - - -	41.2	54.1	7.0	7 54.10	2 38.853		
	A. Z , 208, 52 - -	25.6	38.3	51.7	8 38.53	3 39.283	0 44.43	30.342
	Iris - - - - - -	7.7	19.3	32.7	9 19.90	2 38.910		
	A. Z., 208, 52 - -	51.7	4.7	18.0	10 4.93	3 39.278	0 45.03	30.280
	Iris - - - - - -	45.5	58.3	11.3	10 58.36	2 38.968		
	A. Z., 208, 52 - -	29.7	43.1	56.2	11 43.00	3 39.254	0 44.64	30.198
	Iris - - - - - -	17.3	30.7	43.1	12 30.36	2 39.050		
	A. Z., 208, 52 - -	1.5	15.1	27.4	13 14.66	3 39.191	0 44.30	30.053
	Iris - - - - - -	54.1	7.1		14 6.88	2 38.759		
	A. Z., 208, 52 - -	38.4	51.9	5.0	14 51 43	3 39.168	— 0 44.55	+ 30.321
ne 12	Iris - - - - - -	12.1	25.0	38.0	16 30 25.03	1 53.480		
	A. Z., 208, 52 - -	37.0	50.0	3.0	31 50.00	3 41.965	— 1 24.97	+ 48.565
	Iris - - - - - -	1.0	14.2	27.3	39 14.16	1 53.065		
	A. Z., 208, 52 - -	27.1	40.2	53.1	40 40.13	3 42.027	1 25.97	49.042
	Iris - - - - - -	31.6	44.2	58.1	41 44.63	1 53.051		
	A. Z., 208, 52 - -	57.2	10.3	23.7	43 10.40	3 42.077	1 25.77	49.106
	Iris - - - - - -	55.3	8.5	21.9	44 8.56	1 52.890		
	A. Z , 208, 52 - -	21.9	34.8	47.9	45 34.86	3 41.962	1 26.30	49.152
	Iris - - - - - -	55.2	8.7	22.0	47 8.63	1 52.892		
	A. Z., 208, 52 - -	21.9	34.7	48.1	48 34.90	3 41.922	1 26.27	49.110
	Iris - - - - - -	55.0	8.3	21.7	51 8.33	1 53.080		
	A. Z., 208, 52 - -	22.0	35.0	49.2	52 35.40	3 42.130	1 27.07	49.130
	Iris - - - - - -	31.0	43.8	56.9	53 43.57	1 53.020		
	A. Z., 208, 52 - -	57.2	10.7	24.4	55 10.77	3 42.010	1 27.20	49.070
	Iris - - - - - -	20.2	33.2	46.5	56 33.30	1 52.978		
	A. Z., 208, 52 - -	46.4	59.7	13.0	57 59.70	3 42.080	1 26.40	49.182
	Iris - - - - - -	53.0	6.5	19.3	59 6.26	1 52.862		
	A. Z , 208, 52 - -	20.2	33.3	46.5	17 0 33.33	3 42.042	1 27.07	49.260
	Iris - - - - - -	48.1	0.9	14.3	2 1.10	1 52.705		
	A. Z., 208, 52 - -	15.0	28.0	40.9	3 27.96	3 41.950	1 26.86	49.325
	Iris - - - - - -	38.5	51.3	4.5	4 51.43	1 52.908		
	A. Z., 208, 52 - -	4.7	18.2	31.3	6 18.06	3 42.842	— 1 26.63	+ 50.014
ıne 13	Iris - - - - - -	35.1		1.5	16 45 48.20	1 41.773		
	A. Z., 208, 52 - -	40.2	53.3	6.2	47 53.23	3 48.595	— 2 5.03	+ 66.902
	Iris - - - - - -	10.2		36.2	49 23.20	1 41.796		
	A. Z., 208, 52 - -	15.1	28.3	41.5	51 28.30	3 48.680	2 5.10	66.964
	Iris - - - - - -	42.0	55.3	8.0	52 55.10	1 41.729		
	A. Z., 208, 52 - -	47.2	0.3	13.9	55 0.46	3 48.522	2 5.36	66.875
	Iris - - - - - -	6.2	19.3	32.1	16 57 19.20	1 41.441		
	A. Z., 208, 52 - -	12.5	25.1	38.5	59 25.36	3 48.380	— 2 6.16	+ 67.019

RESULTS.

Corr. Chron. — 46.41 s.

	α h. m. s.	δ ° ′ ″
A. Z., 208, 52,	15 10 7.35	—20 33 7.50

Iris—A. Z , 208, 52,		Δ α m. s.	Δ δ ′ ″
Sid. T.	16 54 14.04	— 1 26.41	+12 35.82
	Δρ	+ .03	.97
	ρ	+ .11	+ 3.61

Corr. Chron. — 43.44 s.

	α h. m. s.	δ ° ′ ″
A. Z., 208, 52,	15 10 7.35	+ 20 33 7.50

Iris—A. Z., 208, 52,		Δ α m. s.	Δ δ ′ ″
Sid. T.	16 54 45.95	— 2 5.58	+17 9.67
	Δρ	+ .04	1.30
	ρ	+ .11	+ 3.62

(Continued.)

IRIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
June 13	A. Z., 208, 46 - -	15.0	28.0		17 0 28.00	2 37.879			
	Iris - - - - - -	5.0		31.5	1 18.25	1 41.587			
	A. Z, 208, 52 - -	11.3	24.7	37.1	3 24.33	3 48.360	— 2 6.08	+ 66.853	
	A. Z., 208, 46 - -	41.7	54.1	7.5	4 54.43	2 37.860			
	Iris - - - - - -	31.3		57.5	5 44.40	1 41.215			
	A. Z, 208, 52 - -	37.2	50.2	3.1	7 50.16	3 48.491	— 2 5.76	+ 67.356	
June 24	Iris - - - - - -	36.2	49.1	0.2	17 45 49.10	3 38.537			
	4995, B. A. C. - -	55.0	8.1	21.0	47 8.03	1 31.080	— 1 18.93	— 67.537	Corr. Chron. — 25.86 s.
	Iris - - - - - -	39.0	52.1	5.0	48 52.03	3 38.910			α δ
	4995, B. A. C. - -	58.2	11.3	24.2	50 11.23	1 30.983	1 19.20	68.007	h. m. s. ° ′ ″
	Iris - - - - - -	3.7	16.5	29.5	54 16.56	3 38.770			4995, B. A. C., 15 3 42.79 —19 13 15.31
	4995, B. A. C. - -	22.4	35.2	48.2	55 35.26	1 30.691	1 18.70	68.159	Iris—4995, B. A. C., Δ α Δ δ
	Iris - - - - - -	44.1	57.1	9.5	57 56.90	3 38.483			h. m. s. m. s. ′ ″
	4995, B. A. C. - -	3.3	15.7	29.1	59 16.03	1 30.615	1 19.13	67.948	Sid. T. 17 56 31.45 — 1 19.08 —17 22.30
	Iris - - - - - -	48.5	2.0	15.0	18 1 1.83	3 38.081			Δ ρ — .09 — 1.87
	4995, B. A. C. - -	8.1	21.2	34.1	2 21.13	1 30.410	1 19.30	67.751	p + .16 + 3.24
	Iris - - - - - -	33.9	46.2	59.5	3 46.53	2 37.800			
	4995, B. A. C. - -	52.5	5.7	19.0	5 5.73	1 30.337	1 19.20	67.543	
	Iris - - - - - -	45.2	58.2	11.2	6 58.20	3 37.805			
	4995, B. A. C. - .	4.2	17.6	30.2	8 17.33	1 30.121	— 1 19.13	— 67.764	
June 25	Iris - - - - - -	6.2	19.0	31.7	16 21 18.96	3 28.760			
	4995, B. A. C. - -	45.5	58.2	11.0	22 58.23	1 33.045	— 1 39.27	— 55.795	Corr. Chron. — 24.27 s.
	Iris - - - - - -	53.7	6.2	19.0	24 6.30	3 28.580			α δ
	4995, B. A. C. - -	32.2	46.1	59.7	25 46.00	1 33.036	1 39.70	55.624	h. m. s. ° ′ ″
	Iris - - - - - -	36.0		2.0	27 49.00	3 28.600			4995, B. A. C. 15 3 42.79 —19 13 15.30
	4995, B. A. C. - -	15.2	28.4	41.3	29 28.30	1 33.937	1 39.30	54.743	Iris—4995, B. A. C. Δ α Δ δ
	Iris - - - - - -	20.7	33.7	46.2	30 33.53	3 28.555			h. m. s. m. s. ″
	4995, B A. C. - -	0.2	13.3	26.1	32 13.20	1 33.958	1 39.67	54.677	Sid. T. 16 28 39.62 —1 39.53 —14 5.95
	Iris - - - - - -	13.6	26.1	39.1	33 26.26	3 28.570			Δ ρ — .02 — .94
	4995, B. A. C. - -	52.7	5.7	18.5	35 5.63	1 33.869	1 39.37	54.781	p + .08 + 3.45
	Iris - - - - - -	56.3	9.3	22.2	37 9.27	3 28.520			
	4995, B. A. C. - -	36.3	49.1	2.0	38 49.13	1 33.975	— 1 39.86	— 54.625	
Aug. 12	A. Z., 303, 47 - -	30.3		56.1	18 13 43.20	1 45.901	+ 1 54.57	— 33.543	
	Iris - - - - - -	25.0	38.0	50.0	15 37.77	2 49.277			Corr. Chron. + 1 31.82 m. s.
	A. Z., 303, 47 - -	45.7	58.0	11.5	17 58.40	1 45.608	1 54.60	33.841	α δ
	Iris - - - - -	10.0	53.0	6.0	19 53.00	2 49.282			h. m. s. ° ′ ″
	A. Z., 303, 47 - -	52.9	6.0	18.5	20 5.80	1 45.471	1 54.73	33.778	A. Z, 303, 47, 15 10 56.03 —18 37 10.13
	Iris - - - - - -	47.7	0.7	13.2	22 0.53	2 49.082			Iris—A. Z, 303, 47, Δ α Δ δ
	A. Z., 303, 47 - -	44.7	56.9	9.7	24 57.10	1 45.418	1 54.93	33.761	h m. s. m. s. ′ ″
	Iris - . - - - -	39.1	52.0	5.0	26 52.03	2 49.012			Sid. T. 18 26 17.97 + 1 54.99 — 8 50.43
	A. Z, 303, 47 - -	49.7	2.1	15.3	28 2.37	1 45.540	1 55.23	33.605	Δ ρ .06 — 1.13
	Iris - - - - - -	44.3	57.5	11.0	29 57.60	2 48.978			p + .13 + 2.49
	A. Z., 303, 47 - -	7.5	20.0	33.4	32 20.30	1 45.140	+ 1 55.67	— 33.834	
	Iris - - - - - -	2.9	16.0	29.0	34 15.97	2 48.807			

IRIS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
g. 25	Iris	50.2	3.0	16.0	19 7 3.07	2	28.905		
	5109, B. A. C.	4.2	16.5	29.2	7 16.63	2	27.675	— 0 13.56	— 1.230
	Iris	40.0		6.2	10 53.10	2	28.480		
	5109, B. A. C.	52.5		19.2	11 5.85	2	27.162	0 12.75	1.318
	Iris		23.1	36.0	14 23.56	2	27.720		
	5109, B. A. C.		35.9	48.2	14 36.06	2	26.630	— 0 12.50	— 1.090
g. 26	5109, B. A. C.	12.1	25.0	38.5	3 25.20	2	33.838	+ 0 43.75	— 9.753
	Iris		9.0	22.0	4 8.95	2	43.591		
	5109, B. A. C.	24.2	37.0	49.7	5 36.96	2	33.490	0 43.37	9.720
	Iris	7.0	20.1	33.9	6 20.33	2	43.210		
	5109, B. A. C.	46.2	58.9		7 59.13	2	33.111	0 44.40	9.619
	Iris	30.9	43.0	56.7	8 43.53	2	42.730		
	5109, B. A. C.	55.0	8.1	21.7	11 8.26	2	32.700	+ 0 43.74	— 10.121
	Iris	39.0	52.0	5.0	11 52.00	2	42.821		
g. 27	5109, B. A. C.	0.2	13.4	26.5	19 13.36	2	33.312	+ 1 42.64	— 18.699
	Iris	43.0	56.0	9.0	20 56.00	2	52.011		
	5109, B. A. C.	24.3		50.7	22 37.50	2	32.428	1 42.63	19.034
	Iris	7.0	19.7	33.7	24 20.13	2	51.462		
	5109, B. A. C.	6.2	19.2	32.3	27 19.23	2	31.440	1 42 84	18.710
	Iris	49.2	2.0	15.0	29 2.07	2	50.150		
	5109, B. A. C.	44.1	56.8	9.2	30 56.70	2	30.339	+ 1 42.96	— 18.748
	Iris	26.5	39.5	53.0	32 39.66	2	49.087		
g. 28	5109, B. A. C.	46.3	59.1	12.0	18 48 59.13	1	48.578	+ 2 39.87	— 27.464
	Iris	26.0	39.0	52.0	51 39.00	2	45.875		
	5109, B. A. C.	44.1	56.8	9.4	52 56.76	1	47.130	2 40.27	27.556
	Iris	24.0	37.1	50.0	55 37.03	2	44.519		
	5109, B. A. C.	0.7	14.1	27.2	57 14.00	1	46.800	2 40.36	27.536
	Iris	41.0	54.2	7.9	59 54.36	2	44.169		
	5109, B. A. C.	57.2	10.2	23.0	19 2 10.13	1	46.250	+ 2 40.87	— 27.887
	Iris	37.9		4.1	4 51.00	2	43.970		

RESULTS.

Corr. Chron. m. s. + 2 12.42

	α h. m. s.	δ ° ′ ″
5109, B. A. C,	15 24 1.35	—19 9 25.00

Iris — 5109, B. A. C.	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	19 12 59.00	— 0 12.94	— 0 18.64
	Δ ρ	.00	— .08
	p +	.14	+ 2.26

Corr. Chron. m. s. + 2 15 40

	α h. m. s.	δ ° ′ ″
5109, B. A. C.	15 24 1.34	—19 9 25.01

Iris — 5109, B. A. C.	h m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	19 10 1.60	+ 0 43.81	— 2 30.67
	Δ ρ	.02	.50
	p —	.14	— 2.26

Corr. Chron. m. s. + 2 18.04

	α h. m. s.	δ ° ′ ″
5109, B. A. C.	15 24 1.32	—19 9 25.01

Iris — 5109, B. A. C.	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	19 29 2.50	+ 1 42.77	— 4 48.90
	Δ ρ	.12	— 1.70
	p +	.15	+ 2.19

Corr. Chron. m. s. + 2 20.27

	α h. m. s.	δ ° ′ ″
5109, B. A. C.	15 24 1.29	—19 9 25.02

Iris — 5109, B. A. C.	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	19 0 20.62	+ 2 40.34	— 7 4.38
	Δ ρ	.06	— 1.10
	p +	.13	+ 2.27

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
May 20	Hygea	58.0	11.0	23.0	17 50 10.70	2 31.219		
	(° 7)		1.5	15.0	51 2.45	2 28.170	— 0 51.75	— 3.049
	Hygea	49.0	2.0	15.0	58 2.00	2 31.372		
	(° 7)	41.0		7.5	58 54.25	2 28.201	0 52.25	3.171
	Hygea	6.5	19.3	34.0	18 10 19.93	2 31.432		
	(° 7)	59.0		25.0	11 12.00	2 28.471	0 52.07	2.961
	Hygea	33.0	45.0	59.0	19 45.67	2 31.565		
	(° 7)	25.0	37.5	51.0	20 37.83	2 28.519	0 52.16	3.046
	Hygea	49.5	2.3	15.3	33 2 37	3 35.000		
	(° 7)		54.2	7.5	33 54.42	3 32.233	0 52.05	2.767
	Hygea	0.0	13.5	26.7	36 13.40	3 34.869		
	(° 7)	52.0	5.0	18.2	37 5.07	3 32.210	0 51.67	2.659
	Hygea	18.2	31.7	44.0	39 31.30	3 35.090		
	(° 7)	10.2	23.0	36.0	40 23.07	3 32.297	— 0 51.77	— 2.793
May 21	Hygea	30.7	44.3	57.1	18 6 44.03	1 53.139		
	(° 7)	24.0	37.5	50.3	7 37.27	1 53.089	— 0 53.24	— 0.050
	Hygea	45.7	58.4	11.5	13 58.53	1 53.170		
	(° 7)	39.2	51.6	5.1	14 51.97	1 53.195	0 53.44	+ 0.025
	Hygea	24.3		51.2	21 37.75	1 53.310		
	(° 7)	17.7	31.0	44.2	22 30.97	1 53.222	0 53.22	— 0.088
	Hygea	51.1	4.8	18.2	29 4.70	1 53.319		
	(° 7)	44.7	58.2	11.5	29 58.13	1 53.398	0 53.43	+ 0.079
	Hygea	16.3	30.2	43.1	36 29.87	1 53.360		
	(° 7)	10.3	23.5	37.0	37 23.60	1 53.291	— 0 53.73	— 0.069
May 26	Hygea	44.1	57.0	10.2	16 42 57.10	1 34.375		
	(° 7)	7.0	20.0	33.2	44 20.07	1 45.871	— 1 22.97	+ 11.496
	Hygea	53.1	6.8	19.3	48 6.40	1 34.769		
	(° 7)	16.2	29.2	43.0	49 29.47	1 46.381	1 23.07	11.612
	Hygea	39.6	52.0	5.3	53 52.30	1 35.221		
	(° 7)	2.3	15.6	28.7	55 15.53	1 46.605	1 23.23	11.384
	Hygea	42.5	56.0	9.5	58 56.00	1 35.349		
	(° 7)	5.9	19.1	32.0	17 0 19.00	1 46.870	1 23.00	11.521
	Hygea	17.7	31.0	44.0	3 30.90	1 35.589		
	(° 7)	41.0	54.2	7.2	4 54.13	1 47.010	1 23.20	11.421
	Hygea	36.3	50.0	3.6	7 49.97	1 35.869		
	(° 7)	0.3	13.5	26.3	9 13.37	1 47.428	1 23.40	11.559
	Hygea	5.2	18.3	31.5	12 18.33	1 36.032		
	(° 7)	28.5	41.2	55.0	13 41.57	1 47.509	1 23.24	11.477
	Hygea	21.3	34.1	48.0	17 34.47	1 36.240		
	(° 7)	44.2	57.7	11.0	18 57.63	1 47.502	1 23.16	11.262
	Hygea	23.2	36.7	49.7	21 36.53	1 36.287		
	(° 7)	46.6	0.1	13.3	23 0.00	1 47.888	1 23.47	11.601
	Hygea	24.3	37.5	50.7	25 37.50	1 36.331		
	(° 7)	47.6	1.3	14.0	27 0.97	1 47.899	— 1 23.47	+ 11.568

RESULTS.

Corr. Chron. — 1 m. 20.16 s.

	α h. m. s.	δ ° ′ ″
(° 7)	19 45 43.12	—22 7 28.70

Hygea—(° 7)		Δα m. s.	Δδ ′ ″
Sid. T.	18 16 49.18	— 0 52.10	— 0 44.89
	Δρ	.00	— .06
	ρ	— .08	+ 2.29

Corr. Chron. — 1 m. 15.89 s.

	α h. m. s.	δ ° ′ ″
(° 7)	19 45 43.15	—22 7 28.54

Hygea—(° 7)		Δα m. s.	Δδ ′ ′
Sid. T.	18 20 17.09	— 0 53.41	— 0 1.58
	Δρ	.00	.00
	ρ	— .08	+ 2.30

Corr. Chron. — 1 m. 7.14 s.

	α h. m. s.	δ ° ′ ″
(° 7)	19 45 43.28	—22 7 27.73

Hygea—(° 7)		Δα m. s.	Δδ ′ ″
Sid. T.	17 3 56.81	— 1 23.22	+ 2 56.60
	Δρ	+ .02	.36
	ρ	— .14	+ 3.33

HYGEA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
350.	Hygea	37.5	51.0		16 41 51.00	1 44.535		
r 27	(° 7)	12.0		38.2	43 25.10	2 27.770	— 1 34.10	+ 13.402
	Hygea	28.3	41.1	54.5	46 41.30	1 44.949		
	(° 7)	1.5	15.0	28.2	48 14.90	2 27.921	1 33.60	13.139
	Hygea	22.1	35.3	48.0	51 35.13	1 45.160		
	(° 7)	56.1	8.7	22.0	53 8.93	2 28.287	1 33.80	13.294
	Hygea	5.2		32.5	58 18.85	1 45.837		
	(° 7)	39.5	53.1	6.5	59 53.03	2 28.810	1 34.18	13.140
	Hygea	6.8	20.0	33.2	17 3 20.00	1 45.819		
	(° 7)		53.5	6.0	4 53.15	2 28.870	1 33.15	13.218
	Hygea	21.5	34.7	47.0	8 34.40	1 46.038		
	(° 7)	55.1	8.0	21.0	10 8.03	2 29.302	1 33.63	13.431
	Hygea	37.2	50.2	3.5	14 50.30	1 45.260		
	(° 7)	11.0	24.0	37.0	16 24.00	2 29.370	1 33.70	13.277
	Hygea	29.0	42.0	55.2	20 42.07	1 46.592		
	(° 7)	2.5	16.0	29.0	22 15.83	2 29.742	— 1 33.76	+ 13.317
ne 11	37507, Lalande . .	52.1	6.0	19.3	16 56 5.80	1 41.647	+ 1 3.10	— 38.640
	Hygea		9.5	22.0	57 8.90	2 50.120		
	37507, Lalande . .	31.3	44.3	57.1	17 5 44.23	1 41.812	1 2.84	38.487
	Hygea	34.1	47.1	0.0	6 47.07	2 50.132		
	37507, Lalande . .	22.1	35.1	48.1	13 35.10	1 42.187	1 2.73	38.532
	Hygea	25.0	37.5	51.0	14 37.83	2 50.552		
	37507, Lalande . .	9.1	22.5	35.5	16 22.37	1 42.235	1 2.80	38.427
	Hygea	12.0	25.0	38.5	17 25.17	2 50.495		
	37507, Lalande . .	4.2	17.5	31.0	21 17.57	1 42.291	1 2.90	38.343
	Hygea	7.1	20.3	34.0	22 20.47	2 50.467		
	37507, Lalande . .	38.7	52.1	5.1	23 51.97	1 42.482	1 2.50	38.394
	Hygea		54.2	8.0	24 54.47	2 50.709		
	37507, Lalande . .	49.1	2.3	15.1	25 2.16	1 42.469	1 2.91	38.477
	Hygea	52.2	5.0	18.0	26 5.07	2 50.779		
	37507, Lalande . .	13.2	26.0	40.2	28 26.47	1 42.372	1 2.06	38.517
	Hygea	16.5	29.1	43.0	29 29.53	2 50.722		
	37507, Lalande . .	24.1	37.1	50.2	30 37.13	1 42.476	1 2.94	38.351
	Hygea	27.0	40.2	53.0	31 40.07	2 50.660		
	37507, Lalande . .	28.2	41.3	54.3	32 41.27	1 42.482	1 2.30	38.314
	Hygea	30.2	44.0	56.5	33 43.57	2 50.629		
	37507, Lalande . .	15.7	29.1	42.1	36 28.97	1 42.538	1 2.43	38.189
	Hygea	18.5	31.2	44.5	37 31.40	2 50.560		
	37507, Lalande . .	19.1	32.1	45.3	40 32.17	1 42.650	1 2.43	38.328
	Hygea	21.5	34.3	48.0	41 34.60	2 50.811		
	37507, Lalande . .	16.2	29.1	43.1	42 29.47	1 42.585	1 2.53	38.452
	Hygea	19.0	32.0	45.0	43 32.00	2 50.870		
	37507, Lalande . .	23.2	36.0	49.2	44 36.13	1 42.630	+ 1 2.03	— 38.466
	Hygea	25.0	38.0	51.5	45 38.16	2 50.929		

RESULTS.

Corr. Chron. — 1 m. 8.34 s.

	α h. m. s.	δ ° ′ ″
(° 7)	19 45 43.31	—22 7 27.56

Hygea—(* 7)	Δ α m. s.	Δ δ m. s.
Sid. T. 17 0 35.79 h. m. s.	— 1 33.74	+ 3 24.06
Δ ρ	+ .02	.43
p	— .15	+ 3.20

Corr. Chron. — 0 m. 47.46 s.

	α h. m. s.	δ ° ″ ′
37507, Lalande,	19 37 38.81	—21 52 45.28

Hygea—37507, Lalande,	Δ α m. s.	Δ δ ′ ″
Sid. T. 17 25 48.85 h. m. s.	+ 1 2.61	— 9 50.54
Δ ρ	+ .03	— .96
p	— .13	+ 3.48

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. rev.	m. s.	rev.
1850. June 12	37507, Lalande . .	27.2	40.2	53.0	17 34 40.13	1 40.515	+ 0 30.15	— 39.114
	Hygea		10.5	23.0	35 10.28	2 49.462		
	37507, Lalande . .	49.3	2.8	16.0	37 2.70	1 40.392	0 29.97	39.267
	Hygea	19.3	32.5	46.2	37 32.67	2 49.492		
	37507, Lalande . .	5.8	19.0	32.0	39 18.93	1 40.599	0 29.94	39.068
	Hygea	35.7	48.9	2.0	39 48.87	2 49.500		
	37507, Lalande . .	54.1	7.6	21.3	41 7.67	1 40.447	0 29.53	39.358
	Hygea	24.2	37.2	50.2	41 37.20	2 49.638		
	37507, Lalande . .	15.9	29.1	42.3	43 29.10	1 40.472	0 29.50	39.294
	Hygea	45.6	58.5	11.7	43 58.60	2 49.599		
	37507, Lalande . .	15.3		42.1	45 28.70	1 40.491	0 29.50	39.088
	Hygea	45.1	58.0	11.5	45 58.20	2 49.412		
	37507, Lalande . .	1.7	15.2		47 15.20	1 40.587	0 29.30	39.102
	Hygea	31.2	44.3	58.0	47 44.50	2 49.522		
	37507, Lalande . .	44.2	57.9	11.5	48 57.86	1 40.575	0 29.67	39.129
	Hygea	14.2	27.5	40.9	49 27.53	2 49.537		
	37507, Lalande . .	37.0	49.7	3.4	50 50.03	1 40.539	0 29.30	39.169
	Hygea	6.5	19.5	32.0	51 19.33	2 49.541		
	37507, Lalande . .	17.5	30.2	43.2	52 30.30	1 40.563	+ 0 29.07	— 39.436
	Hygea	46.5	59.3	12.3	52 59.37	2 49.832		
June 13	Hygea	35.6		2.0	23 48.80	2 45.220		
	37507, Lalande . .	39.1	52.0	5.7	23 52.27	1 35.291	— 0 3.47	— 40.196
	Hygea	24.0		50.2	25 37.10	2 45.030		
	37507, Lalande . .	27.2	40.8	54.0	25 40.67	1 35.280	0 3.57	39.917
	Hygea	31.0	44.7	57.0	27 44.23	2 45.122		
	37507, Lalande . .	35.2	48.0	1.0	27 48.07	1 35.390	0 3.84	39.899
	Hygea	54.0		21.0	29 7.50	2 45.131		
	37507, Lalande . .	58.1	10.7	24.3	29 11.03	1 35.440	0 3.53	39.858
	Hygea	31.2	44.0	57.2	31 44.13	2 45.279		
	37507, Lalande . .	34.5	48.1		31 47.83	1 35.320	0 3.70	40.126
	Hygea	40.7	53.8	7.0	33 53.83	2 45.219		
	37507, Lalande . .	44.1	57.0	10.0	33 57.03	1 35.319	0 3.20	40.067
	Hygea	30.5	43.1	56.0	36 43.20	2 45.210		
	37507, Lalande . .		47.2		36 47.20	1 35.449	0 4.00	39.928
	Hygea	26.2	39.3	52.6	40 39.37	2 45.372		
	37507, Lalande . .	30.4	43.1	57.0	40 43.50	1 35.340	0 4.13	40.199
	Hygea	40.1	53.0	6.5	43 53.20	2 45.449		
	37507, Lalande . .	44.3	57.4		43 57.50	4 35.322	0 4.30	40.294
	Hygea	38.5	51.5	4.8	44 51.60	2 45.491		
	37507, Lalande . .	42.1	55.0	8.5	44 55.20	1 35.438	— 0 3.60	— 40.120
June 24	Hygea	44.2	57.1	11.2	18 53 57.50	1 40.055		
	37221, Lalande . .	35.7	49.1	2.0	54 48.93	3 44.603	— 0 51.43	+ 64.628
	Hygea	53.1	6.2	19.2	57 6.17	1 40.152		
	37221, Lalande . .	44.1	58.2	11.5	57 57.93	3 44.590	0 51.76	64.518
	Hygea	52.0	4.7	18.5	59 5.07	1 40.002		
	37221, Lalande . .	43.2	56.0	9.3	18 59 56.17	3 44.821	— 0 51.10	+ 64.899

RESULTS.

Corr. Chron. + 46.29 s.

	α h. m. s.	δ ° ′ ″
37507, Lalande,	19 37 38.84	—21 52 45.22

Hygea — 37507, Lalande,

		Δ α m. s.	Δ δ ′ ″
Sid. T.	17 43 47.36	+ 0 29.59	—10 2.51
	Δρ	+ .03	— .89
	p	— .12	+ 3.55

Corr. Chron. — 43.29 s.

	α h. m. s.	δ ° ′ ″
37507, Lalande,	19 37 38.86	—21 52 45.17

Hygea — 37507, Lalande,

		Δ α m. s.	Δ δ ′ ″
Sid. T.	17 33 5.01	— 0 3.73	—10 15.75
	Δρ	— .03	.94
	p	— .12	+ 3.54

HYGEA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
ie 24	Hygea	46.1	59.0	12.5	19 0 59.20	1	40.140		
	37221, Lalande . .	38.2	51.2	4.1	1 51.16	3	44.598	— 0 51.96	+ 64.538
	Hygea	39.2	52.0	5.0	2 52.07	1	40.107		
	37221, Lalande . .	30.9	43.8	57.1	3 43.93	3	44.647	0 51.86	64.620
	Hygea	42.2	55.2	9.0	4 55.47	1	40.105		
	37221, Lalande . .	33.8	47.1	0.0	5 46.96	3	44.652	0 51.49	64.627
	Hygea	16.0	29.0	42.0	8 29.00	1	40.060		
	37221, Lalande . .	8.2	21.1	34.2	9 21.17	3	46.601	0 52.17	64.621
	Hygea	10.5	23.3	36.8	10 23.53	1	40.172		
	37221, Lalande . .	2.0	15.1	29.1	11 15.40	3	44.650	0 51.87	64.558
	Hygea	14.0	27.1	40.0	12 27.03	1	39.985		
	37221, Lalande . .	5.7	18.9	32.0	13 18.87	3	44.588	— 0 51.84	+ 64.683
g. 7	6507, B. A. C. . .	27.1	40.0	53.0	42 40.03	1	35.387	+ 0 59.50	— 72.273
	Hygea		39.5	52.5	43 39.53	3	47.580		
	6507, B. A. C. . .	5.7	19.1	32.0	47 18.93	1	35.322	1 0.17	72.128
	Hygea	5.8	19.0	32.5	48 19.10	3	47.370		
	6507, B. A. C. . .	38.2	51.3	4.0	49 51.17	1	35.422	0 59.83	72.117
	Hygea	38.0	51.0	4.0	50 51.00	3	47.459		
	6507, B. A. C. . .	1.3	14.7	28.1	52 14.70	1	35.415	0 59.97	72.026
	Hygea	1.3	14.5	28.2	53 14.67	3	47.361		
	6507, B. A. C. , .	54.1	7.2	19.7	55 7.00	1	35.215	0 59.50	72.225
	Hygea	53.5	6.0	20.0	56 6.50	3	47.360		
	6507, B. A. C. . .	15.7	29.1	42.7	56 29.16	1	35.331	0 59.81	72.078
	Hygea	15.7	29.2	42.0	57 28.97	3	47.329		
	6507, B. A. C. . .	43.0	55.2	9.1	58 55.77	1	35.149	0 59.96	72.359
	Hygea	43.0	55.2	9.0	59 55.73	3	47.428		
	6507, B. A. C. . .	43.2	56.1	9.5	20 1 56.27	1	35.353	0 59.73	72.215
	Hygea	42.7	56.0	9.3	2 56.00	3	47.488		
	6507, B. A. C. . .	8.2	21.0	34.0	4 21.07	1	35.331	0 59.79	72.187
	Hygea	7.5	21.0	34.1	5 20.86	3	47.438		
	6507, B. A. C. . .	18.3	31.2	44.8	6 31.43	1	25.283	0 59.64	72.317
	Hygea	18.0	31.0	44.2	7 31.07	3	47.520		
	6507, B. A. C. . .	6.3	19.1	32.3	9 19.23	1	35.380	0 59.94	72.027
	Hygea	6.0	19.3	32.3	10 19.17	3	47.327		
	6507, B. A. C. . .	33.0	46.0		11 45.72	1	35.220	0 59.85	72.129
	Hygea	32.7	46.0	58.0	12 45.57	3	47.269		
	6507, B. A. C. . .	26.5	39.1	52.7	17 39.43	1	35.335	0 59.47	72.120
	Hygea	25.7	39.0	52.0	18 38.90	3	47.375		
	6507, B. A. C. . .	50.7	3.2	17.1	23 3.67	1	35.240	+ 0 58.83	— 72.200
	Hygea	49.0	2.5	16.1	24 2.50	3	47.360		
g. 9	6507, B. A. C. . .	13.2	26.5	39.5	19 50 26.40	1	34.871	+ 0 3.60	— 69.794
	Hygea	17.0		43.0	50 30.00	3	44.585		
	6507, B. A. C. . .	54.2	7.2	20.7	54 7.37	1	34.970	0 2.66	69.700
	Hygea	57.0	10.0	23.1	54 10.03	3	44.590		
	6507, B. A. C. . .	41.2		7.5	55 54.35	1	34.791	+ 0 2.40	— 69.846
	Hygea	43.5		10.0	19 55 56.75	3	44.557		

RESULTS.

Corr. Chron. s. — 25.74

	α h. m. s.	δ ° ′ ″
37221, Lalande,	19 31 1.93	—22 23 48.86

Hygea — 37221, Lalande,	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	19 2 55.82	— 0 51.72	+16 32.92
	Δρ	.00	1.18
	p —	.03	+ 3.81

Corr. Chron. m. s. + 1 19.45

	α h. m. s.	δ ° ′ ″
6507, B. A. C.	18 55 43.94	—21 57 13.90

Hygea — 6507, B. A. C.	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	20 3 33.00	+ 0 59.71	—18 29.25
	Δρ —	.03	— 1.40
	p +	.06	+ 9.73

(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet.—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Aug. 9	6507, B. A. C.	44.2		11.0	19 57 57.60	1 34.880	+ 0 2.00	— 69.782
	Hygea	46.5		12.7	57 59.60	3 44.582		
	6507, B. A. C.	44.5	58.0	11.0	59 57.83	1 34.791	0 2.75	69.709
	Hygea		1.0	13.5	20 0 0.58	3 44.420		
	6507, B. A. C.	26.4		53.2	2 39.80	1 34.940	0 2.25	69.695
	Hygea	29.1		55.0	2 42.05	3 44.555		
	6507, B. A. C.	3.2	16.0	29.2	5 16.13	1 34.837	0 2.90	69.625
	Hygea 1	6.1	19.0	32.0	5 19.03	3 44.382		
	6507, B. A. C.	58.0	11.3	25.2	7 11.50	1 34.690	0 2.77	69.738
	Hygea	1.5	14.2	27.1	7 14.27	3 44.348		
	6507, B. A. C.	48.2	1.5	15.2	9 1.63	1 34.780	0 2.54	69.694
	Hygea	51.5	4.0	17.0	9 4.17	3 44.394		
	6507, B. A. C.	37.0	50.0	3.5	10 50.17	1 34.691	0 2.70	69.759
	Hygea	39.5	53.0	6.1	10 52.87	3 44.370		
	6507, B. A. C.	34.0		0.1	12 47.05	1 34.762	+ 0 1.75	— 69.650
	Hygea	35.2		2.4	12 48.80	3 44.332		
Aug. 11	Hygea	15.0	28.1	41.0	23 28.03	3 39.909		
	6507, B. A. C.	3.5	17.0	31.2	24 17.23	1 33.560	— 0 49.20	— 66.429
	Hygea	30.5	43.7	57.3	29 43.83	3 39.900		
	6507, B. A. C.		33.5	47.1	30 33.63	1 33.528	0 49.80	66.452
	Hygea	31.5		58.0	31 44.75	3 39.947		
	6507, B. A. C.	21.2	34.0	47.9	32 34.37	1 33.430	0 49.62	66.597
	Hygea	24.0	36.7	50.6	33 37.10	3 39.830		
	6507, B. A. C.	14.2	26.5	40.6	34 27.10	1 33.381	0 50.00	66.529
	Hygea	24.1	37.2	51.2	35 37.50	3 39.789		
	6507, B. A. C.	14.2	27.5	41.6	36 27.77	1 33.320	0 50.27	66.549
	Hygea	17.5	31.3	44.2	37 31.00	3 39.870		
	6507, B. A. C.	8.4	21.3	34.3	38 21.33	1 33.239	0 50.33	66.711
	Hygea	5.2		31.7	39 18.45	3 39.851		
	6507, B. A. C.	54.6	7.7	21.3	40 7.87	1 33.210	0 49.42	66.721
	Hygea	42.1		9.2	42 55.65	3 39.775		
	6507, B. A. C.	32.1	45.5	59.1	43 45.57	1 33.252	0 49.92	66.603
	Hygea	50.0	3.8	16.5	45 3.43	3 39.610		
	6507, B. A. C.	40.5	54.2	7.0	45 53.90	1 33.110	0 50.47	66.580
	Hygea	39.3	52.5	5.7	46 52.50	3 39.651		
	6507, B. A. C.	29.5	42.7	56.2	47 42.80	1 33.178	0 50.30	66.553
	Hygea	34.1	47.3	1.5	48 47.63	3 39.544		
	6507, B. A. C.	24.5	38.3	51.0	49 37.93	1 33.169	0 50.30	66.455
	Hygea	44.3	57.6	10.7	50 57.53	3 39.540		
	6507, B. A. C.	34.1	47.5	0.5	51 47.37	1 33.209	— 0 49.84	— 66.411
Aug. 12	Hygea	26.2	39.7	53.0	0 39.63	3 42.992		
	6507, B. A. C.	40.0	53.0	6.0	0 53.00	1 37.965	— 0 13.43	— 65.107
	Hygea	48.3	1.5	14.7	5 1.50	3 42.941		
	6507, B. A. C.	1.3	14.6	28.3	5 14.73	1 37.792	0 13.23	65.229
	Hygea	51.5	4.7	18.3	8 4.83	3 42.928		
	6507, B. A. C.	5.2	18.2	30.9	20 8 18.10	1 37.880	— 0 13.27	— 65.128

RESULTS.

Aug. 9

Corr. Chron. + 1 m. 24.90 s.

	α h. m. s.	δ ° ′ ″
6507, B. A. C.	18 55 43.93	—21 57 13.79

Hygea — 6507, B. A. C.	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	20 4 8.37	+ 0 2.57	—17 51.67
		Δρ — .06	— 1.72
		p + .13	+ 3.46

Aug. 11

Corr. Chron. + 1 m. 29.48 s.

	α h. m. s.	δ ° ′ ″
6507, B. A. C.	18 55 43.92	—21 57 13.67

Hygea — 6507, B. A. C.	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	20 40 17.60	— 0 49.96	—17 2.81
		Δρ + .04	— 1.46
		p + .12	+ 3.51

(Continued.)

HYGEA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
350.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	m. s.
;. 12	Hygea - - - -	3.2	16.0	29.2	20 10 16.13	3	43.010		
	6507, B. A. C. - -	17.2	30.2	43.0	11 30.13	1	37.810	— 1 14.00	— 65.280
	Hygea - - - -	5.2	18.0	31.0	14 18.07	3	42.575		
	6507, B. A. C. - -	18.2	31.0	44.1	15 31.10	1	37.382	1 13.03	65.273
	Hygea - - - -	7.1	20.0	33.3	17 20.13	3	42.482		
	6507, B. A. C. - -		34.2	47.2	18 34.18	1	37.487	1 14.05	65.075
	Hygea - - - -	41.7		8.0	19 54.85	3	42.430		
	6507, B. A. C. - -	55.8	8.7	21.7	21 8.73	1	37.372	1 13.88	65.138
	Hygea - - - -	1.5	14.3	27.5	22 14.43	3	42.610		
	6507, B. A. C. - -	14.7	28.1	41.5	23 28.10	1	37.422	1 13.67	65.268
	Hygea - - - -	19.2	32.7	45.7	25 32.53	3	42.472		
	6507, B. A. C. - -	32.7	46.1	59.3	26 46.03	1	37.377	1 13.50	65.175
	Hygea - - - -	50.1	3.0	16.2	28 3.20	3	42.441		
	6507, B. A. C. - -	4.2	17.5	31.0	29 17.57	1	37.321	— 1 14.37	— 65.200
;. 15	Hygea - - - -	12.1		38.0	19 52 25.05	3	37.801		
	6507, B. A. C. - -	28.7	42.0	55.2	54 41.97	1	37.940	-- 2 16.92	— 59.941
	Hygea - - - -		36.0	49.1	58 35.83	3	37.815		
	6507, B. A. C. - -	39.7	53.2	6.5	20 0 53.13	1	37.978	2 17.30	59.917
	Hygea - - - -	8.1	21.2	34.0	3 21.10	3	37.801		
	6507, B. A. C. - -	24.1	37.2	51.2	5 37.50	1	27.908	2 16.40	59.973
	Hygea - - - -	58.2	11.5	24.2	8 11.30	3	37.659		
	6507, B. A. C. - -	15.4	28.8	41.5	10 28.57	1	37.908	2 17.27	59.831
	Hygea - - - -	26.1		52.0	19 39.05	3	37.830		
	6507, B. A. C. - -	42.7	55.7	9.0	21 55.80	1	38.121	— 2 16.75	— 59.789
;. 16	Hygea - - - -		33.0	46.2	19 54 32.98	3	32.499		
	6507, B. A. C. - -	55.3	8.7	22.2	57 8.73	1	34.756	— 2 35.75	— 57.823
	Hygea - - - -	20.2	33.6	46.2	59 33.33	3	32.658		
	6507, B. A. C. - -	55.3	8.7	21.3	20 2 8.43	1	34.689	2 35.10	58.049
	Hygea - - - -	0.2	13.7	26.9	4 13.60	3	32.530		
	6507, B. A. C. - -	35.6	48.7	2.1	6 48.80	1	34.651	2 35.20	57.959
	Hygea - - - -	29.2	42.2	55.1	9 42.17	3	32.549		
	6507, B. A. C. - -	4.3	17.2	31.0	12 17.50	1	34.741	2 35.33	57.888
	Hygea - - - -	11.8	24.6	37.9	14 24.77	3	32.542		
	6507, B. A. C. - -	47.0	59.6	13.5	17 0.03	1	34.560	2 35.26	58.062
	Hygea - - - -	14.6	27.2	40.2	20 27.33	3	33.365		
	6507, B. A. C. - -	49.7	3.0	16.2	23 2.97	1	34.445	2 35.64	58.000
	Hygea - - - -	11.0	24.7	38.0	25 24.57	3	32.382		
	6507, B. A. C. - -	47.2	0.0	13.1	28 0.10	1	34.472	2 35.53	57.990
	Hygea - - - -	53.8	7.2	20.0	30 7.00	3	32.420		
	6507, B. A. C. - -	29.2	43.1	55.7	32 42.67	1	34.460	— 2 35.67	— 58.040
;. 27	Hygea - - - -	57.9	11.0	24.0	0 10.97	2	36.859		
	(° 8) - - - - -	48.0	1.2	14.0	1 1.07	2	26.060	— 0 50.10	— 10.799
	Hygea - - - -	18.0	31.2	44.6	2 31.27	2	36.930		
	(° 8) - - - - -		20.9	34.0	3 20.82	2	26.009	— 0 49.55	— 10.921

RESULTS.

Corr. Chron. — 1 m. 31.68 s.

	α h. m. s	δ ° ′ ″
6507, B. A. C.,	18 55 43.91	—21 57 13.61

Hygea—6507, B. A. C,	Δ α h. m. s.	Δ δ ′ ″
Sid. T. 20 16 40.21	— 1 m. 13.64 s.	—16 41.91
Δρ	+ .03	— 1.32
p	+ .08	+ 3.55

Corr. Chron. + 1 m. 42.46 s.

	α h. m. s.	δ ° ′ ″
6507, B. A. C.,	18 55 43.90	—21 57 13.42

Hygea—6507, B. A. C.	Δ α h. m. s.	Δ δ ′ ″
Sid. T. 20 6 8.93	— 2 m. 16.93 s.	—15 20.48
Δρ	+ .02	— 1.17
p	+ .09	+ 3.51

Corr. Chron. + 1 m. 45.02 s.

	α h. m s.	δ ° ′ ″
6507, B. A. C.,	18 55 43.89	—21 57 13.36

Hygea—6507, B. A. C.	Δ α h. m. s.	Δ δ ′ ″
Sid. T. 20 14 3.24	— 2 m. 35.43 s.	—14 51.03
Δρ	+ .03	— 1.13
p	+ .08	+ 3.47

(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	B.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	m. s.
1850. Aug. 27	Hygea	51.5	4.7	17.9	20 5 4.70	2 36.700		
	(° 8)	40.9	54.0	7.2	5 54.03	2 25.982	— 0 49.33	— 10.718
	Hygea	12.7	25.6	38.7	8 25.67	2 36.840		
	(° 8)	1.9	15.0	29.5	9 15.47	2 25.870	0 49.80	10.970
	Hygea	48.1	1.1	14.0	11 1.07	2 36.845		
	(° 8)	38.2	51.2	4.1	11 51.17	2 25.961	0 50.10	10.884
	Hygea		11.0	24.2	14 10.82	2 36.773		
	(° 8)	47.5	1.5	14.2	15 1.07	2 25.951	0 50.25	10.822
	Hygea	29.7		56.2	16 42.95	2 36.725		
	(° 8)	19.0	32.0	45.2	17 32.06	2 25.928	0 49.11	10.797
	Hygea		25.1	38.1	19 24.95	2 36.691		
	(° 8)	1.5	14.8	28.1	20 14.80	2 25.923	0 49.85	10.768
	Hygea	7.0	20.2	33.1	23 20.10	2 36.640		
	(° 8)		9.7	23.1	24 9.85	2 25.849	0 49.75	10.791
	Hygea	36.0	49.7	3.1	28 49.60	2 37.455		
	(° 8)	26.5	39.1	53.1	29 39.57	2 26.772	— 0 49.97	— 10.683
Aug. 28	A. Z., 224, 10 . .	39.1	52.1	5.0	19 42 52.07	2 29.542	+ 0 41.93	— 12.802
	Hygea	21.0	34.0	47.0	43 34.00	2 42.345		
	A. Z., 224, 10 . .	24.0	37.1	50.0	54 37.03	2 29.422	0 41.30	12.787
	Hygea	5.0	18.1	31.9	55 18.33	2 42.209		
	A. Z., 224, 10 . .	7.1	19.9	33.7	57 20.23	2 29.421	0 40.97	12.900
	Hygea	48.0	1.0	14.6	58 1.20	2 42.321		
	A. Z., 224, 10 . .	53.4	6.2	19.1	59 6.23	2 29.530	0 41.57	12.892
	Hygea	34.3	48.1	1.0	59 47.80	2 42.422		
	A. Z., 224, 10 . .	9.2	23.1	36.0	20 1 22.76	2 29.590	0 41.34	12.922
	Hygea	51.0	4.2	17.1	2 4.10	2 42.512		
	A. Z., 224, 10 . .	59.2	12.0	25.7	3 12.30	2 29.550	0 41.60	12.880
	Hygea	40.7	53.7	7.3	3 53.90	2 42.430		
	A. Z., 224, 10 . .	37.5	50.5	3.2	4 50.40	2 29.510	0 41.37	12.799
	Hygea	18.5	31.7	45.1	5 31.77	2 42.309		
	A. Z., 224, 10 . .	28.1	41.1	54.0	6 41.07	2 29.580	0 41.90	12.841
	Hygea	9.7	23.2	36.0	7 22.97	2 42.421		
	A. Z., 224, 10 . .	49.4	2.1	16.1	9 2.53	2 29.630	0 41.50	12.860
	Hygea	30.9	44.1	57.1	9 44.03	2 42.490		
	A. Z., 224, 10 . .	33.5	47.1	0.7	10 47.10	2 29.620	0 40.87	12.824
	Hygea	14.9	28.0	41.0	11 27.97	2 42.444		
	A. Z., 224, 10 . .	25.7	39.2	52.0	12 38.97	2 29.660	0 40.83	12.710
	Hygea	7.1	19.3	33.0	13 19.80	2 42.370		
	A. Z , 224, 10 . .	25.5	38.7	52.0	14 38.73	2 29.685	0 41.20	12.837
	Hygea	7.1	19.5	33.2	15 19.93	2 42.522		
	A. Z., 224, 10 . .	4.7	18.1	31.0	16 17.93	2 29.580	0 41.17	12.828
	Hygea	46.0	59.1	12.2	16 59.10	2 42.408		
	A. Z., 224, 10 . .	55.7	8.7	22.0	17 8.80	2 29.640	0 41.10	12.808
	Hygea	37.0	49.7	3.0	17 49.90	2 42.448		
	A. Z., 224, 10 . .	55.7	9.0	22.0	19 8.90	2 29.512	+ 0 41.26	— 12.917
	Hygea	37.0	50.0	3.5	19 50.16	2 42.429		

RESULTS.

Corr. Chron. m. s. + 2 17.94

	α h. m. s.	δ ° ′ ″
(° 8)	18 52 11.56	—22 2 42.97

Hygea—(° 8)	Δ α m. s.	Δ δ ′ ″
Sid. T. 20 15 15.15	— 0 49.78	— 2 46.22
Δ ρ	.00	— .22
ρ	+ .08	+ 3.27

Corr. Chron. m. s. + 2 20.07

	α h. m. s.	δ ° ′ ″
A. Z., 224, 10,	18 50 39.02	—22 1 29.15

Hygea—A. Z., 224, 10,	Δ α m. s.	Δ δ ′ ″
Sid. T. 20 9 0.40	+ 0 41.33	— 3 17.36
Δ ρ	.00	— .24
ρ	+ .07	+ 3.28

HYGEA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
350.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
;. 29	A. Z., 224, 110 . .	53.0	6.2	19.7	19 7 6.30	2 38.150	+ 0 41.87	— 10.160
	Hygea	35.0	48.0	1.5	7 48.17	2 48.310		
	A. Z., 224, 110 . .	0.5	13.4	27.1	9 13.67	2 38.070	0 41.59	10.085
	Hygea	42.0	55.3	8.5	9 55.26	2 48.155		
	A. Z., 224, 110 . .	54.3	7.8	21.3	11 7.80	2 38.188	0 41.70	10.001
	Hygea	36.3	49.5	2.7	11 49.50	2 48.189		
	A. Z., 224, 110 . .	45.7	59.3	12.7	12 59.23	2 38.219	0 41.27	9.991
	Hygea	27.1	40.7	53.7	13 40.50	2 48.210		
	A. Z., 224, 110 . .	39.7	53.2	6.7	14 53.20	2 38.161	0 41.30	10.061
	Hygea	21.5	34.5	47.5	15 34.50	2 48.222		
	A. Z., 224, 110 . .	29.2	42.7	56.0	16 42.63	2 38.225	0 41.75	10.007
	Hygea	11.2	24.2		17 24.38	2 48.232		
	A. Z., 224, 110 . .	46.3	59.7	13.5	19 59.83	2 38.144	0 41.57	10.021
	Hygea	28.1	41.5	54.6	20 41.40	2 48.165		
	A. Z., 224, 110 . .	40.9	54.0	8.3	21 54.40	2 38.082	0 41.70	10.098
	Hygea	23.1	36.0	49.2	22 36.10	2 48.180		
	A. Z., 224, 110 . .	39.5	52.6	5.2	23 52.43	2 38.181	0 41.73	9.878
	Hygea	21.0	34.2	47.3	24 34.16	2 48.059		
	A. Z., 224, 110 . .	35.7	48.2	2.0	25 48.63	2 38.187	0 41.60	10.044
	Hygea	17.2	29.8	43.7	26 30.23	2 48.231		
	A. Z., 224, 110 . .	13.1	26.2	39.2	27 26.17	2 38.088	0 41.63	10.172
	Hygea	54.6	7.5	21.3	28 7.80	2 48.260		
	A. Z., 224, 110 . .	55.1	8.0	20.9	29 8.00	2 38.069	0 41.67	10.041
	Hygea	36.4	49.6	3.0	29 49.67	2 48.110		
	A. Z., 224, 110 . .	0.5	13.7	27.2	31 13.80	2 38.157	0 41.77	9.943
	Hygea	42.2	55.7	8.8	31 55.57	2 48.100		
	A. Z., 224, 110 . .	35.9	49.7	3.0	32 49.53	2 38.227	+ 0 42.04	— 9.932
	Hygea	18.1	31.5	45.1	33 31.57	2 48.159		
g. 31	A. Z., 224, 110 . .	42.5	55.6	9.0	20 17 55.70	2 37.749	+ 0 46.46	— 3.950
	Hygea	29.0	42.5	55.0	18 42.16	2 41.699		
	A. Z., 224, 110 . .	26.4	39.2	53.1	20 39.57	2 37.717	0 46.66	4.023
	Hygea	13.0	26.2	39.5	21 26.23	2 41.740		
	A. Z., 224, 110 . .	15.9	29.4	42.0	22 29.10	2 37.719	0 46.77	4.011
	Hygea	2.7	16.2	28.7	23 15.87	2 41.730		
	A. Z., 224, 110 . .	7.7	20.8	34.2	24 20.90	2 37.590	0 46.33	4.022
	Hygea	54.2	7.1	20.4	25 7.23	2 41.612		
	A. Z., 224, 110 . .	57.2	10.2	23.7	26 10.37	2 37.637	0 46.50	3.819
	Hygea	43.7	56.9	10.0	26 56.87	2 41.456		
	A. Z., 224, 110 . .	29.7	43.0	56.8	28 43.17	2 37.581	0 46.36	3.869
	Hygea	16.5	29.1	43.0	29 29.53	2 41.450		
	A. Z., 224, 110 . .	27.2	40.0	53.0	30 40.07	2 37.561	0 46.70	3.964
	Hygea	13.2	27.0	40.1	31 26.77	2 41.525		
	A. Z., 224, 110 . .	36.2	49.1	2.7	32 49.33	2 37.617	0 46.70	3.855
	Hygea	23.0	36.1	49.0	33 36.03	2 41.472		
	A. Z., 224, 110 . .	16.2	29.7	43.1	20 34 29.67	2 37.463	+ 0 46.59	— 3.979
	Hygea	3.1	16.0	29.7	35 16.26	2 41.442		

RESULTS.

Corr. Chron. m. s. + 2 23.87

	α h. m. s.	δ ° ′ ″
A. Z., 224, 110,	18 50 39.01	—22 1 29.19

Hygea—A. Z., 224, 110,

	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	19 23 23.79	+ 0 42.66	— 2 34.17
		Δρ .00	— .18
		ρ + .03	+ 3.31

Corr. Chron. m. s. + 2 30.80

	α h. m. s.	δ ° ′ ″
A. Z, 224, 110,	18 50 38.98	—22 1 29.25

Hygea—A. Z., 224, 110,

	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	20 30 45.30	+ 0 46.56	— 1 0.54
		Δρ .00	— .09
		ρ + .09	+ 3.18

(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s	revs.
Aug. 31	A. Z., 224, 110 . .	8.1	21.7	34.8	20 36 21.53	2 37.473	+ 0 46.50	— 3.897
	Hygea	55.1	8.0	21.0	37 8.03	2 41.370		
Sept. 2	A. Z, 224, 110 . .	19.1	32.0	44.9	19 52 32.00	2 38.471	+ 0 57.17	+ 2.150
	Hygea	16.0	29.5	42.0	54 29.17	2 36.321		
	A. Z., 224, 110 . .	38.4	51.7	5.0	55 51.70	2 38.455	0 57.40	2.120
	Hygea	36.2	49.1	2.0	56 49.10	2 36.335		
	6507, B. A. C. . .	43.2	56.4	10.2	20 0 56.60	2 21.882		
	A. Z, 224, 110 . .	36.0	49.3	2.7	2 49.33	2 38.727	0 56.84	2.278
	Hygea	32.9	46.1	59.5	3 46.17	2 36.449		
	A. Z., 224, 110 . .	50.7	3.9	17.2	4 3.93	2 38.580	0 57.37	2.108
	Hygea	48.2	1.1	14.6	5 1.30	2 36.472		
	A. Z., 224, 110 . .	55.6	9.0	21.8	6 8.80	2 38.683	0 56.80	2.222
	Hygea	52.6	5.7	18.5	7 5.60	2 36.461		
	A. Z, 224, 110 . .	49.5	2.0	15.7	10 2.40	2 38.695	0 57.23	2.280
	Hygea	46.2	59.7	13.0	10 59.63	2 36.415		
	A. Z., 224, 110 . .	3.7	16.5	29.7	12 16.63	2 38.632	0 58.04	2.227
	Hygea	1.5	14.6	27.9	13 14.67	2 36.405		
	A. Z., 224, 110 . .	7.9	21.2	34.8	14 21.30	2 38.720	0 57.13	2.331
	Hygea	5.2	18.6	31.5	15 18.43	2 36.389		
	A. Z, 224, 110 . .	7.4	20.3	33.5	16 20.50	2 38.615	0 57.27	2.304
	Hygea	4.3	18.0	31.0	17 17.77	2 36.311		
	A. Z., 224, 110 . .	3.4	16.9	29.6	18 16.63	2 38.586	0 57.37	2.317
	Hygea	0.9	14.0	27.1	19 14.00	2 36.269		
	A. Z., 224, 110 . .	9.8		36.0	20 22.90	2 38.685	0 57.23	2.315
	Hygea	7.2	20.0	33.2	21 20.13	2 36.370		
	A. Z., 224, 110 . .	5.0	18.5	31.7	22 18.40	2 38.530	+ 0 57.37	+ 2.212
	Hygea	2.5	15.7	29.1	23 15.77	2 36.318		
Sept. 3	A. Z., 224, 110 . .	49.2	1.9	16.0	19 55 2.37	3 37.730	+ 1 4.63	+ 5.525
	Hygea	54.0	7.0	20.0	56 7.00	3 32.205		
	A. Z., 224, 110 . .	46.2	59.6	13.0	58 59.60	3 37.761	1 4.50	5.573
	Hygea	51.0	4.0	17.3	20 0 4.10	3 32.188		
	A. Z., 224, 110 . .	1.7	15.3	28.0	3 15.00	3 37.674	1 4.63	5.524
	Hygea	6.5	19.4	33.0	4 19.63	3 32.150		
	A. Z., 224, 110 . .	58.2	11.5	24.7	8 11.47	3 37.663	1 4.50	5.403
	Hygea	2.7	16.1	29.1	9 15.97	3 32.260		
	A. Z., 224, 110 . .	59.5	13.1	26.1	11 12.90	3 37.451	1 5.15	5.431
	Hygea		18.1	31.0	12 18.05	3 32.020		
	A. Z., 224, 110 . .	7.9	20.2	33.9	17 20.67	3 37.531	1 5.16	5.486
	Hygea	12.5	26.0	39.0	18 25.83	3 32.045		
	A. Z., 224, 110 . .	13.1	26.2	39.6	21 26.30	3 37.509	1 4.97	5.621
	Hygea	18.1	31.7	44.0	22 31.27	3 31.888		
	A. Z., 224, 110 . .	53.7	7.0	20.2	30 6.97	3 37.271	1 4.46	5.399
	Hygea	58.0	11.2	25.1	31 11.43	3 31.872		
	A. Z., 224, 110 . .	49.7	2.7	16.0	34 2.80	3 37.215	1 4.50	5.513
	Hygea	54.0	7.2	20.7	35 7.30	3 31.702		
	A. Z., 224, 110 . .	13.2	26.2	39.4	20 39 26.26	3 37.075	+ 1 5.31	+ 5.463
	Hygea	18.3	31.4	45.0	40 31.57	3 31.612		

RESULTS.

Aug. 31 — Sept. 2:

Corr. Chron. m. s. + 2 37.54

	α h. m. s.	δ ° ′ ″
A. Z, 224, 110,	18 50 38.96	—22 1 29.32

Hygea — A. Z, 224, 110,

	Δα h. m. s.	Δδ ′ ″
Sid. T. 20 13 16.85	+ 0 57.27	+ 0 34.38
Δρ	.00	.05
p	+ .07	+ 3.16

Sept. 3:

Corr. Chron. m. s. + 2 40.36

	α h. m. s.	δ ° ′ ″
A. Z., 224, 110,	18 50 38.95	—22 1 29.35

Hygea — A. Z., 224, 110,

	Δα h. m. s.	Δδ ′ ″
Sid. T. 20 19 45.58	+ 1 4.78	+ 1 24.44
Δρ	.00	.11
p	+ .08	+ 3.12

HYGEA.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
		s.	s.	s.	h. m s.	w. revs.	m. s.	revs.
0. 4	A. Z., 224, 110 . .	2.7	16.0	29.1	19 42 15.93	3 38.570	+ 1 13.10	+ 8.580
	Hygea	16.0	29.1	42.0	43 29.03	3 29.990		
	A. Z., 224, 110 . .	5.1	18.0	31.5	46 18.20	3 38.749	1 13.83	8.784
	Hygea	19.0	32.1	45.0	47 32.03	3 29.965		
	A. Z., 224, 110 . .	5.7	19.3	32.8	50 19.26	3 38.750	1 13.51	8.745
	Hygea	19.2	33.1	46.0	51 32.77	3 30.005		
	A. Z., 224, 110 . .	14.2	27.2	40.1	54 27.16	3 38.442	1 13.54	8.601
	Hygea	37.3	40.7	54.1	55 40.70	3 29.841		
	A. Z., 224, 110 . .	21.0	34.3	47.5	58 34.27	3 38.541	+ 1 13.46	+ 8.719
	Hygea	34.1	48.1	1.0	59 47.73	3 29.822		
6	A. Z., 224, 110 . .	50.2		17.0	20 10 3.60	3 45.845	+ 1 34.40	+ 15.576
	Hygea	25.0	38.0	51.0	11 38.00	3 30.269		
	A. Z., 224, 110 . .	8.7		35.0	17 21.85	3 45.815	1 36.15	15.635
	Hygea	45.0	58.0	11.0	18 58.00	3 30.180		
	A. Z., 224, 110 . .	33.9	46.9	0.5	20 47.10	3 45.710	1 35.67	15.490
	Hygea	9.2	23.1	36.0	22 22.77	3 30.220		
	A. Z., 224, 110 . .	29.1	42.1	55.0	24 42.77	3 45.842	1 34.90	15.633
	Hygea	4.0	18.0	31.0	26 17.67	3 30.209		
	A. Z., 224, 110 . .	32.9	46.0	59.0	27 45.97	3 45.798	1 35.06	15.628
	Hygea	8.1	21.0	34.0	29 21.03	3 30.170		
	A. Z., 224, 110 . .	18.0	30.9	44.0	31 30.97	3 45.777	1 35.13	15.767
	Hygea	53.0	6.1	19.2	33 6.10	3 30.010		
	A. Z., 224, 110 . .	48.0	1.9	14.0	35 1.30	3 45.607	— 1 35.43	+ 15.591
	Hygea	24.0	36.2	50.0	36 36.73	3 30.010		
10	Hygea	46.0		12.0	21 0 59.00	2 50.288		
	6507, B. A. C. . .	14.1	27.2	40.5	3 27.26	3 33.920	— 2 28.26	+ 13.632
	Hygea	28.0	41.2	54.0	5 41.07	2 50.240		
	6507, B. A. C. . .	56.0	9.0	22.0	8 9.00	2 63.720	2 27.93	13.480
	Hygea	46.1	59.0	13.0	9 59.37	2 50.001		
	6507, B. A. C. . .	15.1	28.1	41.7	12 28.30	2 63.669	2 28.93	13.668
	Hygea	55.0	8.0	21.0	15 8.00	2 50.155		
	6507, B. A. C. . .	23.5	36.3	49.7	17 36.50	2 63.720	2 28.50	13.565
	Hygea	48.5	2.0	15.0	20 1.83	2 49.920		
	6507, B. A. C. . .	17.2	30.6	43.5	22 30.43	2 63.558	2 28.60	13.638
	Hygea	48.9	2.0	15.0	24 1.97	2 49.977		
	6507, B. A. C. . .	16.5	29.3	43.2	26 29.67	2 63.422	2 27.70	13.445
	Hygea	7.0		34.2	29 20.60	2 49.990		
	6507, B. A. C. . .	35.9	49.3	2.4	31 49.20	2 63.325	— 2 28.60	+ 13.335
11	Hygea	1.0	14.0	27.5	19 14 14.16	2 47.991		
	6507, B. A. C. . .	12.0	25.5	38.7	16 25.40	2 65.022	— 2 11.24	+ 17.031
	Hygea	53.0		19.2	21 6.10	2 47.960		
	6507, B. A. C. . .	4.2	17.2	30.7	23 17.37	2 64.950	2 11.27	16.990
	Hygea	58.1		24.0	25 11.05	2 47.839		
	6507, B. A. C. . .	9.0	22.0	35.5	27 22.17	2 64.977	2 11.12	17.138
	Hygea	46.2	59.0	13.0	30 59.40	2 44.392		
	6507, B. A. C. . .	57.0	10.9	24.0	33 10.63	2 61.432	— 2 11.23	+ 17.040

RESULTS.

Corr. Chron. m. s. + 2 42.14

	α h. m. s.	δ ° ′ ″
A. Z., 224, 110,	18 50 38.94	—22 1 29.39

Hygea—A. Z., 224, 110,	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	19 54 18.59	+ 1 13.49	+ 2 13.50
	Δρ	.00	.16
	p +	.05	+ 3.16

Corr. Chron. m. s. + 2 49.90

	α h. m. s.	δ ° ′ ″
A. Z., 224, 110	18 50 38.91	—22 1 29.45

Hygea—A. Z., 224, 110,	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	20 28 18.51	+1 35.25	+ 4 0.03
	Δρ	.00	.33
	p +	.08	+ 3.05

Corr. Chron. m. s. + 3 1.28

	α h. m. s.	δ ° ′ ″
6507, B. A. C.	18 55 43.58	—21 57 14.18

Hygea—6507, B. A. C.	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	21 18 2.97	— 2 28.36	+ 3 28.06
	Δρ —	.01	.37
	p +	.12	+ 2.88

Corr. Chron. m. s. + 3 3.48

	α h. m. s.	δ ° ′ ″
6507, B. A. C.	18 55 43.56	—21 57 14.21

Hygea—6507, B. A. C.	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	19 29 17.43	— 2 11.23	+ 4 22.17
	Δρ —	.00	.31
	p +	.03	+ 3.05

(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Sept. 11	Hygea	26.0	39.1	52.0	19 39 39.03	2 44.710		
	6507, B. A. C. . .	37.1	50.0	3.0	41 50.03	2 61.800	— 2 11.27	+ 17.090
Sept. 12	Hygea	33.0	46.0	0.0	51 46.33	2 41.502		
	6507, B. A. C. . .	24.9	38.0	51.0	53 37.97	2 62.690	— 1 51.64	+ 21.100
	Hygea	49.0	2.1	15.1	57 2.07	2 41.460		
	6507, B. A. C. . .	39.5	53.1	6.3	58 52.97	3 32.827	1 50.90	21.279
	Hygea	22.3	35.6	49.1	20 0 35.67	2 41.482		
	6075, B. A. C. . .	14.2	27.5	40.3	2 27.33	3 32.730	1 51.66	21.160
	Hygea	14.1	27.2	40.0	4 27.10	2 41.372		
	6507, B. A. C. . .	4.8	18.1	31.6	6 18.17	3 32.640	1 51.07	21.180
	Hygea	27.1	40.2	53.0	8 40.10	2 41.311		
	6507, B. A. C. . .	17.5	31.0	44.5	10 31.00	3 32.670	1 50.90	21.271
	Hygea	44.2	57.0	11.2	11 57.47	2 41.251		
	6507, B. A. C. . .	34.3	48.0	1.3	13 47.87	3 32.605	1 50.40	21.266
	Hygea	1.2	14.4	27.9	15 14.50	2 41.360		
	6507, B. A. C. . .	51.9	4.8	18.2	17 4.97	3 32.629	1 50.47	21.181
	Hygea	11.0	23.9	37.4	19 24.10	2 41.273		
	6507, B. A. C. . .		15.0	27.9	21 14.90	3 32.610	1 50.80	21.249
	Hygea	27.9	41.0	54.0	22 40.97	2 41.220		
	6507, B. A. C. . .	18.3	32.0	45.1	24 31.80	3 32.512	1 50.83	21.204
	Hygea	37.2	50.0	3.6	25 50.26	2 41.148		
	6507, B. A. C. . .	27.3	40.5	53.7	27 40.50	3 32.462	— 1 50.24	+ 21.226
Sept. 13	Hygea	42.5		9.0	19 52 55.75	2 37.410		
	6507, B. A. C. . .	12.0	25.7	39.0	54 25.57	3 32.418	— 1 29.82	+ 24.920
	Hygea	1.3	14.4	27.2	56 14.30	2 37.333		
	6507, B. A. C. . .	31.2	44.0	57.5	57 44.23	3 32.401	1 29.93	24.980
	Hygea	59.6	12.7	26.1	59 12.80	2 37.135		
	6507, B. A. C. . .	28.9	42.3	55.7	20 0 42.30	3 32.398	1 29.50	25.175
	Hygea	36.0	49.2	2.0	2 49.07	2 37.118		
	6507, B. A. C. . .		19.2	32.0	4 19.07	3 32.395	1 30.00	25.189
	Hygea	30.8	44.0	57.0	5 43.93	2 37.150		
	6507, B. A. C. . .	0.5	14.0	27.2	7 13.90	3 32.290	1 29.97	25.052
	Hygea	12.0	25.1	38.0	8 25.03	2 37.050		
	6507, B. A. C. . .	41.6	54.0	7.5	9 54.37	3 32.312	1 29.34	25.174
	Hygea	57.1	10.5	23.3	11 10.30	2 37.095		
	6507, B. A. C. . .	27.0	40.3	53.6	12 40.30	3 32.220	1 30.00	25.037
	Hygea	27.5		54.0	14 40.75	2 37.235		
	6507, B. A. C. . .	57.3	10.8	24.1	16 10.73	3 32.277	1 29.98	24.954
	Hygea	21.0	34.0	47.0	17 34.00	2 37.065		
	6507, B. A. C. . .	51.3	4.2	17.5	19 4.33	3 32.300	1 30.33	25.147
	Hygea	53.0	7.0	19.5	20 6.50	2 37.068		
	6507, B. A. C. . .	23.0	36.2	49.1	21 36.10	3 32.238	— 1 29.60	+ 25.082
Sept. 16	Hygea	15.1	28.0		20 24 28.18	2 24.260		
	6507, B. A. C. . .	33.0	46.2	59.5	24 46.23	3 31.981	— 0 18.05	+ 37.633
	Hygea	45.8	59.1	13.0	26 59.30	2 24.175		
	6507, B. A. C. . .		18.5	30.9	27 17.95	3 31.962	— 0 18.65	+ 37.699

RESULTS.

Corr. Chron. m. s. + 3 6.06

	α h. m. s.	δ ° ′ ″
6507, B. A. C.	18 55 43.55	—21 57 14.24

Hygea—6507, B. A. C.		Δα m. s.	Δδ ′ ″
Sid. T.	20 12 51.92	— 1 50.89	+ 5 26.02
	Δρ	— .01	.41
	ρ	+ .06	+ 2.98

Corr. Chron. m. s. + 3 9.12

	α h. m. s.	δ ° ′ ″
6507, B. A. C.	18 55 43.54	—21 57 14.28

Hygea—6507, B. A. C.		Δα m. s.	Δδ ′ ″
Sid. T.	20 10 2.36	— 1 29.85	+ 6 25.33
	Δρ	— .01	.49
	ρ	+ .06	+ 2.96

(Continued.)

HYGEA.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
		s.	s.	s.	h. m. s.	w. rev.	m. s.	rev.
50. . 16	Hygea	23.2	36.0		20 29 36.00	2 24.260		
	6507, B. A. C. . .		54.0	7.9	29 54.00	3 31.981	— 0 18.00	+ 37.633
	Hygea	41.0	54.2		33 54.20	2 24.175		
	6507, B. A. C. . .		12.0	55.0	34 12.00	3 31.962	0 17.80	37.699
	Hygea	9.0	22.0		35 22.00	2 24.155		
	6507, B. A. C. . .	27.5	40.0	53.2	35 40.23	3 31.755	0 18.23	37.512
	Hygea	17.2	31.2		38 31.20	2 24.110		
	6507, B. A. C. . .		49.2	2.3	38 49.20	3 31.918	0 18.00	37.720
	Hygea	13.2	26.0		41 26.00	2 24.030		
	6507, B. A. C. . .		44.6	58.1	41 44.60	3 32.010	0 18.60	37.892
	Hygea	8.5	21.5		44 21.50	2 24.185		
	6507, B. A. C. . .		39.2	52.5	44 39.20	3 31.948	0 17.70	37.675
	Hygea	9.4	23.0		47 23.00	2 24.175		
	6507, B. A. C. . .		41.0	54.0	47 41.00	3 32.000	0 18.00	37.737
	Hygea	2.1	16.1		51 16.10	2 24.202		
	6507, B. A. C. . .		33.2	47.1	51 33.20	3 31.912	0 17.10	37.622
	Hygea	36.2	49.1		21 29 49.10	2 23.079		
	6507, B. A. C. . .		7.3	20.2	30 7.30	3 31.040	0 18.20	37.873
	Hygea	7.8	21.2		32 21.20	2 23.119		
	6507, B. A. C. . .		38.0	51.6	32 38.00	3 30.990	0 16.80	37.783
	Hygea	23.1	36.2		34 36.20	2 22.886		
	6507, B. A. C. . .		53.4	7.2	34 53.20	3 30.880	0 17.00	37.906
	Hygea	14.1	27.2		37 27.20	2 22.775		
	6507, B. A. C. . .		44.6	58.2	37 44.60	3 30.772	0 17.40	37.909
	Hygea	29.2	42.0		39 42.00	2 22.793		
	6507, B. A. C. . .		59.2	12.7	39 59.20	3 30.800	— 0 17.20	+ 37.919
t. 17	6507, B. A. C. . .	47.1	0.3	13.8	19 39 0.40	3 39.549	+ 0 6.70	+ 42.129
	Hygea		7.0	20.5	39 7.10	2 27.332		
	6507, B. A. C. . .	38.3	51.4	4.7	41 51.47	3 39.562	0 6.73	42.062
	Hygea	45.1	58.2	11.3	41 58.20	2 27.412		
	6507, B. A. C. . .	34.2	47.0	0.5	48 47.23	3 39.515	0 6.85	42.179
	Hygea		54.0	7.0	48 54.08	2 27.248		
	6507, B. A. C. . .	48.5	1.0	14.3	53 1.26	3 39.472	0 7.01	41.939
	Hygea	53.1	8.2	21.5	53 8.27	2 27.445		
	6507, B. A. C. . .	0.4	13.4	26.2	56 13.33	3 39.460	0 6.97	42.092
	Hygea	7.5	20.0	33.5	56 20.30	2 27.280		
	6507, B. A. C. . .	42.5	55.2	8.0	59 55.23	3 39.370	0 7.04	41.982
	Hygea	49.1	2.0	15.7	20 0 2.27	2 27.300		
	6507, B. A. C. . .	9.6	23.2	36.3	1 23.03	3 39.528	0 6.94	42.119
	Hygea	16.8	30.0	43.1	1 29.97	2 27.321		
	6507, B. A. C . .	19.3	32.0	45.2	3 32.17	3 39.447	0 6.95	42.137
	Hygea		39.1	53.0	3 39.12	2 27.222		
	6507, B. A. C. . .	33.2	45.2	59.0	5 45.80	3 39.360	+ 0 7.13	+ 42.032
	Hygea	39.5	53.1	6.2	20 5 52.93	2 27.240		

RESULTS.

Corr. Chron. m. s. + 3 18.55

	α h. m. s.	δ ° ′ ″
6507, B. A. C.	18 55 43.50	—21 57 14.38

Hygea — 6507, B. A. C.		Δα m. s.	Δδ ′ ″
Sid. T.	20 59 47.47	— 0 17.78	+ 9 40.15
	Δρ	— .03	.89
	p	+ .10	+ 2.86

Corr. Chron. m. s. + 3 21.43

	α h. m. s.	δ ° ′ ″
6507, B. A. C.	18 55 43.48	—21 57 14.41

Hygea — 6507, B. A. C.		Δα m. s.	Δδ ′ ″
Sid. T.	19 57 45.01	+ 0 6.92	+10 46.64
	Δρ	.01	.80
	p	+ .05	+ 2.96

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850. Sept. 21	Hygea	47.0	0.0	13.2	20 51 0.07	2 47.250		
	A. Z., 224, 121	5.0	18.1	30.5	51 17.87	2 36.688	— 0 17.80	— 10.562
	Hygea	21.0	34.2	47.5	53 34.23	2 47.620		
	A. Z., 224, 121	39.0	52.0	5.0	53 52.00	2 36.722	0 17.77	10.898
	Hygea	24.0	37.2	51.0	56 37.40	2 47.429		
	A. Z., 224, 121	42.0	55.2	8.0	56 55.07	2 36.710	0 17.67	10.719
	Hygea	6.2	19.0	33.0	59 19.40	2 47.140		
	A. Z., 224, 121		37.0	50.0	59 36.90	2 36.580	0 17.50	10.560
	Hygea	33.8	47.5	0.7	21 3 47.33	2 47.221		
	A. Z., 224, 121	51.8	5.0		4 5.08	2 36.610	— 0 17.75	+ 10.611
Sept. 22	A. Z., 224, 121	19.0	32.0	45.1	19 57 32.03	1 34.189	+ 0 13.14	— 6.182
	Hygea	32.5	45.0	58.0	57 45.17	1 40.371		
	A. Z., 224, 121	24.2	36.8	50.0	20 0 37.00	1 34.278	0 13.20	6.021
	Hygea	37.0	50.0	3.6	0 50.20	1 40.299		
	A. Z., 224, 121	26.4	39.2	52.8	2 39.47	1 34.001	0 13.26	6.207
	Hygea	39.2	53.0	6.0	2 52.73	1 40.208		
	A. Z., 224, 121	36.4	49.5	2.5	4 49.47	1 34.175	0 13.03	6.078
	Hygea	49.0	2.4	16.0	4 2.50	1 40.253		
	A. Z., 224, 121	37.3	50.2	3.0	6 50.17	1 33.950	0 13.33	6.106
	Hygea	50.5	3.0	17.0	7 3.50	1 40.056		
	A. Z., 224, 121	47.5	1.0	14.0	9 0.83	1 34.105	0 13.24	6.064
	Hygea	1.0	14.0	27.2	9 14.07	1 40.169		
	A. Z., 224, 121	6.5	19.2	32.8	13 19.50	1 33.895	0 13.47	6.117
	Hygea	19.0	33.0	46.9	13 32.97	1 40.012		
	A. Z., 224, 121	5.9	19.0	32.0	15 18.97	1 34.062	0 13.73	6.038
	Hygea	19.2	33.2	45.7	15 32.70	1 40.100		
	A. Z., 224, 121	12.5	25.0	38.0	17 25 17	1 34.129	0 13.66	5.792
	Hygea	25.3	39.2	52.0	17 38.83	1 39.921		
	A. Z., 224, 121	23.5	36.0	49.2	19 36.23	1 34.094	+ 0 13.77	— 5.916
	Hygea	37.0	50.0	3.0	19 50.00	1 40.010		
Sept. 23	A. Z., 224, 121	38.1	51.5	4.2	20 44 51.26	1 46.432	+ 0 47.65	— 0.968
	Hygea		39.0	52.0	45 38.91	1 47.400		
	A. Z., 224, 121	9.2	22.5	36.1	49 22.60	1 46.307	0 47.50	0.925
	Hygea		10.2	23.2	50 10.10	1 47.232		
	A. Z., 224, 121	0.4	13.5	27.0	51 13.63	1 46.330	0 47.60	0.910
	Hygea	48.2	1.5	14.0	52 1.23	1 47.240		
	A. Z., 224, 121	48.2	1.5	15.0	54 1.57	1 46.212	0 47.50	1.033
	Hygea	36.0	49.2	2.0	54 49.07	1 47.245		
	A. Z., 224, 121	42.2	55.0	8.2	55 55.13	1 46.262	0 47.93	1.028
	Hygea	29.7	43.5	56.0	56 43.06	1 47.290		
	A. Z., 224, 121	28.6	41.5	55.0	57 41.70	1 46.209	0 47.96	0.806
	Hygea	16.5	29.5	43.0	58 29.66	1 47.015		
	A. Z., 224, 121	34.2		0.5	21 0 47.35	1 46.309	0 48.15	0.911
	Hygea	22.8		49.0	1 35.50	1 47.220		
	A. Z., 224, 121	0.0	13.5	26.2	21 3 13.23	1 46.248	+ 0 47.94	— 0.870
	Hygea	48.1	1.4	14.0	4 1.17	1 47.118		

RESULTS.

Corr. Chron. — 1 m. 24.60 s.

	α h. m. s.	δ ° ′ ″
A. Z., 224, 121,	18 58 6.42	—21 38 52.88

Hygea — A. Z., 224, 121,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	20 55 27.09	— 0 17.70	— 2 43.98
		Δρ + .00	— .24
		ρ + .09	+ 2.79

Corr. Chron. — 1 m. 20.46 s.

	α h. m. s.	δ ° ′ ″
A. Z., 224, 121,	18 58 6.39	—21 38 52.91

Hygea — A. Z., 224, 121,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	20 7 29.81	+ 0 13.38	— 1 33.01
		Δρ .00	— .11
		ρ + .05	+ 2.86

Corr. Chron. — 1 m. 18.85 s.

	α h. m. s.	δ ° ′ ″
A. Z., 224, 121,	18 58 6.37	—21 38 52.94

Hygea — A. Z., 224, 121,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	20 57 22.62	+ 0 47.86	— 0 14.42
		Δρ .00	.02
		ρ + .09	+ 2.76

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Sept. 23	A. Z., 224, 121	43.2	57.0	10.0	21 4 56.73	1 46.020	+ 0 48.24	— 0.955
	Hygea	31.7	45.2	58.0	5 44.97	1 46.975		
	A. Z., 224, 121	39.5	53.2	6.0	6 52.90	1 46.110	+ 0 48.17	— 0.978
	Hygea	28.0	41.2	54.0	7 41.07	1 47.088		
Sept. 30	6548, B. A. C.	56.2	9.5	22.0	20 35 9.23	1 44.528	+ 2 25.77	— 55.152
	Hygea	22.0	35.0	48.0	37 35.00	3 39.600		
	6548, B. A. C.	5.2		31.0	42 18.10	1 44.537	2 25.90	54.923
	Hygea	31.0	44.0	57.0	44 44.00	3 39.380		
	6548, B. A. C.	3.4	16.5	29.2	47 16.37	1 44.502	2 25.83	54.956
	Hygea	29.0	42.2	55.0	49 42.20	3 39.378		
	6548, B. A. C.	59.4	12.8	25.5	51 12.57	1 44.479	2 25.43	54.927
	Hygea	24.8	38.2	51.0	53 38.00	3 39.326		
	6548, B. A. C.	25.3	39.1	52.0	55 38.80	1 44.431	2 26.30	54.678
	Hygea	52.0	5.0		58 5.10	3 39.029		
	6548, B. A. C.	18.2	30.9	44.2	59 31.10	1 44.255	+ 2 26.10	— 54.927
	Hygea	44.2	57.2	10.2	21 1 57.20	3 39.102		
Oct. 1	6548, B. A. C.	29.4	42.5	55.2	20 9 42.37	1 42.929	+ 3 7.20	— 49.288
	Hygea	36.5	49.2	3.0	12 49.57	3 32.137		
	6548, B. A. C.	7.1	19.8	32.9	14 19.60	1 42.970	3 6.97	49.208
	Hygea	13.5	26.5	39.7	17 26.57	3 32.098		
	6548, B. A. C.	11.5	24.2	38.2	19 24.63	1 42.979	3 6.94	49.079
	Hygea	18.5	31.5	44.7	22 31.57	3 31.978		
	6548, B. A. C.	45.7	58.5	12.0	24 58.73	1 42.808	3 7.27	49.101
	Hygea	53.0	6.0	19.0	28 6.00	3 31.829		
	6548, B. A. C.	29.5	43.2	56.3	29 43.00	1 42.815	3 7.07	49.080
	Hygea	37.2	50.0	3.0	32 50.07	3 31.815		
	6548, B. A. C.	56.2		23.2	35 9.70	1 42.773	3 7.37	49.086
	Hygea	4.2	17.0	30.0	38 17.07	3 31.779		
	6548, B. A. C.	21.5	34.2	47.5	39 34.40	1 42.729	3 7.00	49.101
	Hygea	28.2	42.0	55.0	42 41.40	3 31.750		
	6548, B. A. C.	50.0	3.4	16.7	44 3.43	1 42.765	+ 3 7.57	— 48.995
	Hygea	58.0	11.0	24.0	47 11.00	3 31.680		
Oct. 2	6548, B. A. C.	55.7	8.9	22.2	20 15 8.93	1 39.542	+ 3 50.07	— 42.950
	Hygea	46.0		12.0	18 59.00	3 22.412		
	6548, B. A. C.	52.3	5.4	18.3	25 5.33	1 39.422	3 50.67	43.278
	Hygea	43.0	56.0	9.0	28 56.00	2 52.533		
	6548, B. A. C.	15.3	28.2	41.3	30 28.26	1 39.300	3 51.21	43.250
	Hygea	6.2	19.2	33.0	34 19.47	2 52.383		
	6548, B. A. C.	8.2	21.4	34.3	36 21.30	1 39.297	3 50.20	43.193
	Hygea	58.0	11.5	25.0	40 11.50	2 52.323		
	6548, B. A. C.	52.2	4.7	18.0	42 4.97	1 39.327	3 50.13	43.268
	Hygea	42.0	55.1	8.2	45 55.10	2 52.428		
	6548, B. A. C.	39.2	52.2	5.1	47 52.17	1 39.380	+ 3 50.96	— 43.040
	Hygea	30.2	43.0	56.2	51 43.13	2 52.253		

RESULTS.

Sept. 30

Corr. Chron. — 0 m. 56.11 s.

	α h. m. s.	δ ° ′ ″
6548, B. A. C.	19 1 52.36	—21 15 15.45

Hygea—6548, B. A. C.		Δ α m. s.	Δ δ ′ ″
Sid. T.	20 50 0.81	+ 2 25.89	—14 4.20
	Δ ρ	— .03	— 1.23
	ρ	+ .08	+ 2.60

Oct. 1

Corr. Chron. — 0 m. 52.66 s.

	α h. m. s.	δ ° ′ ″
6548, B. A. C.	19 1 52.34	—21 15 15.48

Hygea—6548, B. A. C.		Δ α m. s.	Δ δ ′ ″
Sid. T.	20 29 21.50	+ 3 7.17	—12 34.90
	Δ ρ	— .01	— .95
	ρ	+ .06	+ 2.62

Oct. 2

Corr. Chron. — 0 m. 47.59 s.

	α h. m. s.	δ ° ′ ″
6548, B. A. C.	19 1 52.33	—21 15 15.51

Hygea—6548, B. A. C.		Δ α m. s.	Δ δ ′ ″
Sid. T.	20 35 53.11	+ 3 50.54	—11 3.38
	Δ ρ	— .01	+ .86
	ρ	+ .07	+ 2.61

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Oct. 3	Hygea	45.5	59.0	12.0	20 50 58.83	3 25.129		
	1351, Madras	40.0	53.1	6.2	53 53.10	2 35.778	— 2 54.27	— 19.263
	Hygea	4.2		30.0	21 2 17.10	3 25.081		
	1351, Madras	58.1	11.0	24.7	5 11.27	2 35.559	2 54.17	19.434
	Hygea	26.9	39.7	53.0	6 39.87	3 24.919		
	1351, Madras	20.0	33.2	46.2	9 33.13	2 35.560	2 53.26	19.271
	Hygea	21.0	34.2	46.5	15 33.90	3 24.721		
	1351, Madras	14.1	27.0	40.0	18 27.03	2 35.402	2 53.13	19.231
	Hygea	13.5	26.8	39.5	21 26.60	3 24.479		
	1351, Madras	6.7	19.2	33.0	24 19.63	2 35.322	2 53.03	19.069
	Hygea	42.5	56.0	9.0	25 55.83	3 24.492		
	1351, Madras	35.7	49.1	2.0	28 48.93	2 35.132	2 53.10	19.272
	Hygea	7.2	20.0	33.0	30 20.07	3 24.170		
	1351, Madras	0.5	13.5	26.2	33 13.40	2 35.150	2 53.33	19.932
	Hygea	21.0	33.7	47.0	34 33.90	3 34.095		
	1351, Madras	13.4	26.8	40.0	37 26.73	2 34.961	— 2 52.83	— 19.046
Oct. 4	Hygea	45.5	59.0	12.1	20 13 58.87	2 47.460		
	1351, Madras	56.2	9.5	22.0	16 9.23	2 34.092	— 2 10.36	— 13.368
	Hygea	59.4		26.2	18 12.80	2 47.231		
	1351, Madras	9.7	23.1	35.7	20 22.83	2 34.109	2 10.03	13.122
	Hygea	24.0	37.4	50.3	22 37.23	2 47.248		
	1351, Madras	34.1	47.3	0.3	24 47.23	2 34.020	2 10.00	13.228
	Hygea	2.7	16.0	29.1	26 15.93	2 47.209		
	1351, Madras	12.4	25.1	39.0	28 25.50	2 33.950	2 9.57	13.259
	Hygea	43.0	56.0	9.3	34 56.10	2 46.609		
	1351, Madras	53.1	6.0	19.5	37 6.20	2 33.491	2 10.10	13.118
	Hygea	24.1	37.0	50.2	38 37.10	2 46.530		
	1351, Madras	33.1	46.5	59.2	40 46.26	2 33.460	2 9.16	13.070
	Hygea	22.2		48.0	43 35.10	2 46.690		
	1351, Madras	31.0	44.0	56.5	45 43.83	2 33.705	2 8.73	12.985
	Hygea	38.7	52.0	5.0	47 51.90	2 46.520		
	1351, Madras	48.5	1.5	14.3	50 1.43	2 33.568	2 9.53	12.952
	Hygea	25.1	38.0	51.2	52 38.10	2 46.500		
	1351, Madras	34.2	47.5	0.7	53 47.47	2 33.470	2 9.37	13.030
	Hygea	34.0	47.0	0.0	56 47.00	2 46.419		
	1351, Madras	43.5	56.0	9.5	58 56.33	2 33.420	— 2 9.33	— 12.999
Oct. 6	Hygea	59.2	12.9	26.0	23 12.70	2 31.300		
	1351, Madras	36.0	49.6	3.1	23 49.57	2 31.098	— 0 36.87	— 0.202
	Hygea	44.3	57.0	10.0	24 57.10	2 31.421		
	1351, Madras		34.1	47.5	25 34.40	2 31.080	0 37.30	0.341
	Hygea	31.5	44.0	57.0	26 44.17	2 31.381		
	1351, Madras	7.2	20.7	34.0	27 20.63	2 31.151	0 36.46	0.230
	Hygea	4.2	17.0	29.2	28 16.80	2 31.250		
	1351, Madras	40.9	54.0	7.0	28 53.97	2 31.060	0 37.17	0.190
	Hygea	2.5	38.0	51.2	33 38.07	2 29.111		
	1351, Madras		15.2	28.3	34 15.22	2 29.065	— 0 37.15	— 0.046

RESULTS.

Corr. Chron. m. s. —0 42.13

	α h. m. s.	δ ° ′ ″
1351, Madras,	19 8 22.00	—21 19 47.69

Hygea—1351, Madras,

		Δ α m. s.	Δ δ ′ ″
Sid. T.	21 17 46.13	— 2 53.39	— 4 56.86
	Δ ρ +	.02	— .45
	p +	.09	+ 2.52

Corr. Chron. m. s. —0 38.10

	α h. m. s.	δ ° ′ ″
1351, Madras,	19 8 22.02	—21 19 47.73

Hygea—1351, Madras,

		Δ α m. s.	Δ δ ′ ″
Sid. T.	20 34 54.91	— 2 9.62	— 3 21.54
	Δ ρ	.00	— .26
	p +	.06	+ 2.58

(Continued.)

HYGEA.

	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
6	Hygea - - - - -	31.0	44.0	57.2	20 35 44.07	2 29.222		
	1351, Madras - -	9.2		34.0	36 20.60	2 29.108	— 0 36.53	— 0.104
	Hygea - - - - -	24.2	37.0	50.2	37 37.13	2 29.105		
	1351, Madras - -	0.5	13.6	27.1	38 13.73	2 29.068	0 36.60	0.037
	Hygea - - - - -	13.6	27.0	40.0	39 26.87	2 29.208		
	1351, Madras - -	50.0	3.2	16.5	40 3.23	2 29.099	0 36.36	— 0.109
	Hygea - - - - -	59.3	12.3	25.1	41 12.23	2 29.052		
	1351, Madras - -	35.1	49.0	2.0	41 48.70	2 29.101	0 36.47	+ 0.049
	Hygea - - - - -	47.0	0.2	13.5	42 0.23	2 29.000		
	1351, Madras - -	23.0	36.5	49.7	42 36.40	2 29.005	0 36.17	+ 0.005
	Hygea - - - - -	25.0	38.0	51.2	44 38.07	2 29.012		
	1351, Madras - -	0.8	14.2	27.1	45 14.03	2 28.961	0 35.96	— 0.051
	Hygea - - - - -	58.2	11.4	25.0	46 11.53	2 28.962		
	1351, Madras - -		48.1	1.2	46 47.98	3 28.952	0 36.45	— 0.010
	Hygea - - - - -	49.1	2.0	15.2	49 2.10	2 28.665		
	1351, Madras - -	25.1	38.0	51.2	49 38.10	2 28.751	0 36.00	+ 0.086
	Hygea - - - - -	23.2	36.1	49.0	50 36.10	2 28.622		
	1351, Madras - -	59.2	12.5	25.3	51 12.33	2 28.714	— 0 36.23	+ 0.092
7	1351, Madras - -	57.2	10.2	23.0	20 12 10.13	2 28.699	+ 0 11.00	+ 6.658
	Hygea - - - - -	8.0	21.0	34.4	12 21.13	2 22.041		
	1351, Madras - -	3.3	16.3	29.0	14 16.20	2 28.482	0 10.80	6.572
	Hygea - - - - -	14.2	27.0		14 27.00	2 21.910		
	1351, Madras - -	34.2	47.0	0.2	16 47.13	2 28.429	0 10.94	6.548
	Hygea - - - - -	45.2	58.0	11.0	16 58.07	2 21.881		
	1351, Madras - -	30.7	44.1	57.0	18 43.93	2 28.469	0 11.00	6.518
	Hygea - - - - -	42.3	55.0	7.5	18 54.93	2 21.951		
	1351, Madras - -	57.5	11.0	24.5	20 11.00	2 28.501	0 11.07	6.561
	Hygea - - - - -	9.0	22.0	35.2	20 22.07	2 21.940		
	1351, Madras - -	1.3		28.0	23 14.65	2 28.480	0 11.02	6.578
	Hygea - - - - -	12.5	26.0	38.5	23 25.67	2 21.902		
	1351, Madras - -	24.3	37.5	51.0	28 37.60	2 28.558	0 11.57	6.457
	Hygea - - - - -	36.0	49.0	2.5	28 49.17	2 22.101		
	1351, Madras - -	34.2	47.0	1.0	30 47.40	2 28.560	0 10.90	6.639
	Hygea - - - - -	45.0	58.4	11.5	30 58.30	2 21.921		
	1351, Madras - -	32.0	46.0	59.0	32 45.67	2 28.598	+ 0 11.40	+ 6.528
	Hygea - - - - -	44.2	57.0	10.0	32 57.07	2 22.070		
8	1351, Madras - -	14.0	27.2	40.0	20 22 27.07	2 32.230	+ 1 0.16	+ 13.230
	Hygea - - - - -	14.2	27.5	40.0	23 27.23	2 19.000		
	1351, Madras - -	43.5	56.3	9.7	24 56.50	2 32.335	1 0.50	13.475
	Hygea - - - - -		57.0	10.0	25 57.00	2 18.860		
	1351, Madras - -	15.7	29.0	42.0	28 28.90	2 32.280	1 0.20	13.302
	Hygea - - - - -	16.0	29.0	42.3	29 29.10	2 18.978		
	1351, Madras - -	53.3	6.0	19.0	31 6.10	2 32.141	1 0.33	13.313
	Hygea - - - - -	53.5	6.8	19.0	32 6.43	2 18.828		
	1351, Madras - -	56.2	9.5	22.7	20 37 0.37	2 32.179	+ 1 0.63	+ 13.439
	Hygea - - - - -		9.7		38 1.00	2 18.740		

RESULTS.

Corr. Chron. — 28.24 s.

	α h. m. s.	δ ° ′ ″
1351, Madras,	19 8 21.96	—21 19 47.75

Hygea — 1351, Madras,	Δ α m. s.	Δ δ ′ ″
Sid. T. 20 36 54.41	— 0 36.55	— 0 1.20
Δρ	.00	.00
p	+ .06	+ 2.55

Corr. Chron. — 24.55 s.

	α h. m. s.	δ ° ′ ″
1351, Madras,	19 8 21.93	—21 19 47.79

Hygea — 1351, Madras,	Δ α m. s.	Δ δ ′ ″
Sid. T. 20 21 43.61	+ 0 11.08	+ 1 40.86
Δρ	.00	.12
p	+ .05	+ 2.57

Corr. Chron. — 20.04 s.

	α h. m. s.	δ ° ′ ″
1351, Madras,	19 8 21.90	—21 19 47.82

Hygea — 1351, Madras,	Δ α m. s.	Δ δ ′ ″
Sid. T. 20 35 55.06	+ 1 0.57	+ 3 26.01
Δρ	.00	.26
p	+ .06	+ 2.50

(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Oct. 8	1351, Madras - -	11.2	24.2	37.0	20 39 24.13	2 32.079	+ 1 0.64	+ 13.369	
	Hygea - - - - -	11.7	24.6	38.0	40 24.77	2 18.710			
	1351, Madras - -	43.2	56.0	9.0	41 56.07	2 32.130	1 1.06	13.580	
	Hygea - - - - -	44.1	57.2	10.0	42 57.13	2 18.550			
	1351, Madras - -	33.0	46.2	59.4	44 46.20	2 32.035	1 0.83	13.477	
	Hygea - - - - -	33.9	47.2	0.0	43 47.03	2 18.558			
	1351, Madras - -	52.3	5.6	18.2	47 5.37	2 31.960	+ 1 0.83	+ 13.450	
	Hygea - - - - -	53.2	6.0	19.4	48 6.20	2 18.510			
Oct. 9	1351, Madras - -	53.3	6.2	19.2	21 50 6.23	2 51.328	+ 1 51.50	+ 20.886	Corr. Chron. — 15.40 s.
	Hygea - - - - -	45.0	57.2	11.0	51 57.73	1 60.609			α h. m. s. δ ° ′ ″
	1351, Madras - -	17.2	30.0	43.2	22 0 30.13	2 51.228	1 51.87	20.715	1351, Madras, 19 8 21.88 —21 19 47.86
	Hygea - - - - -	9.0	22.0	35.0	2 22.00	1 60.680			Hygea — 1351, Madras, Δ α Δ δ
	1351, Madras - -	34.7	47.3	1.3	7 47.76	2 51.161	1 51.64	20.668	h. m. s. m. s. ′ ″
	Hygea - - - - -	26.7	39.5	52.0	9 39.40	1 60.660			Sid. T. 22 4 9.65 + 1 51.75 + 5 18.49
	1351, Madras - -	36.0	49.2	2.0	11 49.07	2 51.051	+ 1 52.00	+ 20.618	Δ ρ .03 .65
	Hygea - - - - -	28.0	41.0	54.2	13 41.07	1 60.600			p + .12 + 2.33
Oct. 14	1719, G. 12 Y. - -	16.2	29.3	42.0	9 1 29.16	1 50.236	+ 0 49.84	— 38.409	Corr. Chron. + 41.23 s.
	Hygea - - - - -		19.0	32.0	2 19.01	3 28.565			α h. m. s. δ ° ′ ″
	1719, G. 12 Y. - -	27.2	40.0	53.5	4 40.23	2 19.628	0 50.80	38.364	1719, G. 12 Y., 19 13 49.14 —20 54 56.81
	Hygea - - - - -		31.2	43.9	5 31.03	3 28.080			Hygea — 1719, G. 12 Y., Δ α Δ δ
	1719, G. 12 Y. - -	31.8	45.3	58.4	6 45.17	2 19.379	0 51.65	38.453	M. T. h. m. s. m. s. ′ ″
	Hygea - - - - -		37.0	50.0	7 36.82	3 27.920			9 8 26.18 + 0 50.90 — 9 50.18
	1719, G. 12 Y. - -	7.4	20.7	33.6	9 20.57	2 19.401	0 51.10	38.313	Δ t + .14
	Hygea - - -		11.5	25.0	10 11.67	3 27.802			Δ ρ — .11 — 1.90
	1719, G. 12 Y. - -	2.2		28.0	12 15.10	2 18.892	+ 0 51.10	— 38.460	p + .13 + 2.21
	Hygea - - - - -		6.2	19.2	13 6.20	3 27.440			
Oct. 15	1719, G. 12 Y. - -	34.6	48.2	0.8	7 19 47.87	2 18.595	+ 1 41.26	— 31.077	Corr. Chron. +38.72 s.
	Hygea - - - - -	16.2	29.2	42.0	21 29.13	3 19.760			α h. m. s. δ ° ′ ″
	1719, G. 12 Y. - -	29.2	42.7	55.7	23 42.53	2 18.649	1 41.87	31.409	1719, G. 12 Y., 19 13 49.12 — 20 54 56.83
	Hygea - - - - -	11.5	24.2	37.5	25 24.40	3 20.146			Hygea — 1719, G. 12 Y., Δ α Δ δ
	1719, G. 12 Y. - -	1.3	14.2	28.1	27 14.53	2 18.680	1 42.37	31.353	M. T. h. m. s. m. s. ′ ″
	Hygea - - - - -	44.2	57.0	9.5	28 56.90	3 20.121			7 27 38.45 +1 42.04 — 8 0.40
	1719, G. 12 Y. - -	12.5	25.8	39.2	30 25.83	2 18.601	+ 1 42.65	— 31.190	Δ t + .28
	Hygea - - - - -	55.0		22.0	32 8.48	3 19.879			Δ ρ — .02 — .64
									p + .07 + 2.40
Oct. 16	1719, G. 12 Y. - -	9.6		35.7	6 31 22.65	2 24.704	+ 2 35.68	— 23.488	Corr. Chron. + 37.57 s.
	Hygea - - - - -	46.0	58.0	11.0	33 58.33	3 18.280			α h. m. s. δ ° ′ ″
	1719, G. 12 Y. - -	23.6	36.2	49.2	36 36.33	2 24.670	2 36.50	— 23.455	1719, G. 12 Y., 19 13 49.10 — 20 54 56.83
	Hygea - - - - -	0.0	12.5	26.0	39 12.83	3 18.213			Hygea — 1719, G. 12 Y. Δ α Δ δ
	1719, G. 12 Y. - -	16.0	29.5	42.7	42 29.40	2 24.850	3 52.65	+ 39.217	Comp. with k. M. T.
	Hygea - - - - -	53.4		19.5	45 6.45				h. m. s. m. s. ′ ″
	(° k) . - - - -		22.5	35.0	46 22.05	1 15.800			6 37 12.95 + 2 36.09 — 6 0.73
	1719, G. 12 Y. - -	28.2	40.8	54.0	6 53 41.00	2 24.539	+ 3 53.10	+ 39.017	Δ t + .42
	(° k) - - - - -	21.2	34.1	47.0	57 34.10	1 15.688			Δ ρ — .01 — .41
									p + .04 + 2.45

HYGEA.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
50. 19	(° k)	12.5	25.1	38.0	7 13 25.20	1 45.081		
	(° 6, 1857)		47.0	0.0	14 47.13	3 43.452	— 1 21.93	+ 58.451
	(° k)	46.2	59.1	13.0	27 59.43	1 41.494		
	(° 6, 1857)	8.0	21.2	34.0	28 21.06	3 39.927	1 21.63	58.513
	(° 9)	43.0	57.0	9.0	32 56.33	1 35.949		
	(° k)	8.5	21.7	35.2	33 21.80	1 41.420		
	(° 6, 1857)	30.5	43.0	56.0	34 43.16	3 39.955	1 21.06	58.615
	(° k)	52.7	6.0	19.3	36 6.00	1 41.390		
	(° 6, 1857)	14.3	27.7	41.0	37 27.67	3 39.910	1 21.67	58.600
	(° k)	51.7	4.4	18.2	39 4.76	1 41.268		
	(° 6, 1857)	13.6	26.6		40 26.77	3 39.910	— 1 22.01	+ 58.722
21	(° k)	26.2		52.0	6 49 39.10	1 42.433	+ 3 35.63	— 19.369
	Hygea	1.2	15.0	28.0	53 14.73	2 31.635		
	(° k)	52.3	5.0	18.2	7 4 5.17	1 42.211	3 35.83	19.405
	Hygea	28.0	41.0	54.0	7 41.00	2 31.449		
	(° k)	45.7	59.1	11.9	13 58.90	1 41.839	+ 3 36.27	— 19.267
	Hygea	22.0	35.0	48.5	17 35.17	2 30.939		
22	(° k)	52.0	5.2	18.5	6 35 5.23	1 44.849	— 5 33.70	— 9.207
	Hygea	28.0	41.0	54.0	39 41.00	2 25.269		
	36878, Lalande			52.0	40 38.93	1 35.642	0 57.93	19.539
	Hygea	31.0	44.0	58.0	45 44.33	2 25.390		
	36878, Lalande	29.1	42.5	55.7	46 42.43	1 35.666	0 58.10	19.636
	Hygea	54.1	7.0	20.0	49 7.03	2 25.105		
	36878, Lalande	51.2	4.4	18.1	50 4.57	1 35.613	0 57.54	19.404
	Hygea	16.2	29.3	42.5	51 29.33	2 25.081		
	36878, Lalande	14.4	27.0	40.5	52 27.30	1 35.540	0 57.97	19.453
	Hygea	39.3	52.5	6.0	55 52.60	2 25.068		
	36878, Lalande	37.2	50.2	3.7	56 50.37	1 35.557	0 57.77	19.423
	Hygea	57.1		23.7	58 10.40	2 24.949		
	36878, Lalande	54.5	7.9	21.0	59 7.89	1 35.475	0 57.40	19.386
	Hygea	24.1	37.0	50.9	7 0 37.33	2 24.840		
	36878, Lalande	21.2	34.8	48.3	1 34.77	1 35.482	0 57.44	19.270
	Hygea	24.4	37.1	50.5	2 37.33	2 24.809		
	36878, Lalande	21.5	34.3	47.8	3 34.53	1 35.468	0 57.20	19.253
	Hygea	53.0	6.0	19.2	5 6.06	2 24.687		
	36878, Lalande	50.3	3.7	17.5	6 3.83	1 35.302	— 0 57.77	— 19.297
29	A. Z., 310, 173	46.0	59.0	12.0	7 21 59.00	3 40.820	+ 0 2.50	+ 32.582
	Hygea		1.0	15.0	22 1.50	2 38.150		
	A. Z., 310, 173	59.0		25.0	28 12.00	3 40.772	0 2.00	32.564
	Hygea	1.0		27.0	28 14.00	2 38.120		
	A. Z., 310, 173	53.0		20.0	33 6.50	3 40.530	0 3.25	32.644
	Hygea	56.0		23.5	33 9.75	2 37.798		
	A. Z., 310, 173	48.0		14.0	37 1.00	3 40.399	0 3.00	32.611
	Hygea	51.0		17.0	37 4.00	2 37.700		
	A. Z., 310, 173	9.0		35.0	38 22.00	3 40.210	+ 0 4.00	+ 32.560
	Hygea	13.0		39.0	38 26.00	2 37.562		

RESULTS.

Corr. Chron. m. s. + 0 33.73

	α h. m. s.	δ ° ′ ″
(° 6, 1857,)	19 19 4.55	—21 59 58.66

(° k)—(° 6, 1857,)

M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
7 30 33.17	— 1 21.66	+15 00.33
Δ t	— .22	
Δ ρ	+ .05	+ 1.31

Corr. Chron. m. s. + 0 29.88

	α h. m. s.	δ ° ′ ″
36878, Lalande,	19 23 17.23	—20 42 34.34

Hygea—36878, Lalande,

M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
6 54 46.04	— 0 57.68	— 4 58.27
Δ t	— .16	
Δ ρ	+ .01	— .38
p	+ .06	+ 2.40

Corr. Chron. m. s. — 0 23.47

	α h. m. s.	δ ° ′ ″
A. Z., 310, 173,	19 29 43.58	—20 38 14.65

Hygea—A. Z., 310, 173,

M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
7 33 52.46	+ 0 3.01	+ 8 21.12
Δ t	+ .00	
Δ ρ	— .03	+ .80
p	+ .09	+ 2.16

(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Oct. 29	A. Z., 310, 173 . .	42.0	55.0	9.0	7 41 55.33	3 40.150	+ 0 3.34	+ 32.670
	Hygea	46.0	59.0	71.0	41 58.67	2 37.392		
Nov. 1	A. Z., 310, 173 . .	47.9		14.7	6 44 1.30	3 46.201	+ 3 20.70	+ 64.590
	Hygea	9.0	22.0	35.0	47 22.00	1 41.691		
	A. Z., 310, 173 . .	39.7	53.0	6.5	48 53.07	3 46.127	3 21.53	64.692
	Hygea	1.5		27.7	52 14.60	1 41.515		
	A. Z., 310, 173 . .	13.0	25.8	39.1	54 25.96	3 46.046	+ 3 21.30	+ 64.895
	Hygea	34.2	47.5	0.1	57 47.26	1 41.231		
Nov. 2	Hygea	57.5	11.0	23.7	6 22 10.73	3 40.835		
	6760, B. A. C. . .	23.2	36.4	49.5	25 36.37	1 54.371	— 3 25.64	— 46.544
	Hygea	29.3		56.0	34 42.65	3 40.650		
	6760, B. A. C. . .	54.7	8.1	21.0	38 7.93	1 54.282	3 25.28	46.448
	Hygea	28.0		54.6	40 41.30	3 40.460		
	6760, B A. C. . .	52.7	5.6	18.7	44 5.67	1 54.150	3 24.37	46.390
	Hygea	20.0	32.5	46.0	46 32.83	3 40.262		
	6760, B. A. C. . .	44.6	58.1	11.4	49 58.03	1 53.972	3 25.20	46.370
	Hygea	19.3	42.7	45.8	51 32.60	3 40.093		
	6760, B. A. C. . .	43.7	57.1	10.6	54 57.13	1 53.920	3 24.53	46.253
	Hygea	1.9		28.2	7 13 15.05	3 39.718		
	6760, B. A. C. . .	25.2	38.6	51.3	16 38.37	1 53.473	3 23.32	46.325
	Hygea	54.3		20.3	19 7.30	3 39.489		
	6760, B. A. C. . .	16.9	30.2	43.6	22 30.23	1 53.470	3 22.93	46.099
	Hygea	39.1		5.7	24 52.40	3 39.105		
	6760, B. A. C. . .	2.0	15.7	28.7	28 15.47	1 53.272	3 23.07	45.913
	Hygea	36.2	49.1	2.5	31 49.27	3 38.891		
	6760, B. A. C. . .	58.6	11.6	24.8	35 11.67	1 53.001	— 3 22.40	— 45.970
Nov. 4	Hygea	16.2	29.5	43.1	6 22 29.60	2 46.771		
	6760, B. A. C. . .	24.6	37.8	51.0	23 37.80	1 53.480	— 1 8.20	— 23.458
	Hygea	37.1	50.2	2.7	24 50.00	2 46.710		
	6760, B. A. C. . .	44.8	58.2	11.3	25 58.10	1 53.421	1 8.10	23.456
	Hygea	1.4	20.0	43.3	27 20.23	2 46.875		
	6760, B. A. C. . .	15.1	28.6	41.2	28 28.30	1 53.500	1 8.07	23.542
	Hygea	14.2	27.0	40.0	30 27.07	2 46.742		
	6760, B. A. C. . .	21.5	34.3	48.0	31 34.60	1 53.362	1 7.53	23.547
	Hygea	31.0	44.5	57.5	32 44.33	2 46.591		
	6760, B. A. C. . .	39.2	52.2	5.5	33 52.33	1 53.345	1 8.00	23.413
	Hygea	58.2		24.0	35 11.10	2 46.585		
	6760, B. A. C. . .	5.2	19.2	32.3	36 18.90	1 53.339	1 7.80	23.413
	Hygea	31.5	44.2	57.5	37 44.40	2 46.443		
	6760, B. A. C. . .	39.2	52.2	5.6	38 52.33	1 53.249	1 7.93	23.361
	Hygea	20.0		46.0	40 33.00	2 46.375		
	6760, B. A. C. . .	27.2	40.3	53.3	41 40.26	1 53.190	1 7.26	23.352
	Hygea	14.0	27.2	40.0	45 27.07	2 46.510		
	6760, B. A. C. . .	21.3	35.1	48.2	46 34.87	1 53.295	1 7.80	23.382
	6760, B. A. C. . .	44.6	57.0	10.0	47 57.20	2 46.548		
	Hygea	51.2	4.5	17.3	49 4.33	1 53.315	— 1 7.13	— 23.400

RESULTS.

Corr. Chron. + 0 m. 21.81 s.

	α h. m. s.	δ ° ′ ″
A. Z, 310, 173,	19 29 43.53	—20 38 14.36

Hygea — A. Z., 310, 173,

M. T. h. m. s.	Δα m. s.	Δδ ′ ″
6 52 49.76	+ 3 21.18	+16 34.82
Δt	.55	
Δρ	.04	+ 1.40
p +	.08	+ 2.18

Corr. Chron. + 0 m. 20.93 s.

	α h. m. s.	δ ° ′ ″
6760, B. A. C.	19 37 37.91	—20 6 51.43

Hygea — 6760, B. A. C.

M. T. h. m. s.	Δα m. s.	Δδ ′ ″
6 58 39.17	— 3 24.08	—11 50.94
Δt	— .55	
Δρ +	.05	— 1.00
p +	.08	+ 2.15

Corr. Chron. + 0 m. 19.02 s.

	α h. m. s.	δ ° ′ ″
6760, B. A. C.,	19 37 37.89	—20 6 51.49

Hygea — 6760, B. A. C.,

M. T. h. m. s.	Δα m. s.	Δδ ′ ″
6 34 47.42	— 1 7.78	— 6 0.14
Δt	— .18	
Δρ +	.01	— .48
p +	.10	+ 2.17

HYGEA.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
50. . 5	6760, B. A. C.	23.0	36.0	49.0	6 22 36.00	2 34.780	+ 0 2.13	— 11.661
	Hygea	25.1	38.3	51.0	22 38.13	2 46.441		
	6760, B. A. C.	34.1	47.0	0.2	24 47.10	2 34.509	0 2.23	11.906
	Hygea	36.3	49.2	2.5	24 49.33	2 46.415		
	6760, B. A. C.	39.5	52.0	5.2	26 52.23	2 34.640	0 1.94	11.735
	Hygea	41.3	54.2	7.0	26 54.17	2 46.375		
	6760, B. A. C.	51.2	4.0	18.2	29 4.47	2 34.511	0 2.30	11.871
	Hygea	53.6	7.0	19.7	29 6.77	2 46.382		
	6760, B. A. C.	2.0	16.0	29.0	31 15.67	2 34.601	0 2.50	11.729
	Hygea	4.5	18.5	31.5	31 18.17	2 46.330		
	6760, B. A. C.	13.5	27.5	40.0	34 27.00	2 34.372	0 2.17	11.920
	Hygea	16.0	29.0	42.5	34 29.17	2 46.292		
	6760, B. A. C.	23.2	36.3	49.2	36 36.23	2 34.459	0 2.44	11.582
	Hygea	25.3	39.0	51.7	36 38.67	2 46.041		
	6760, B. A. C.	33.2	46.2	0.0	38 46.47	2 34.457	0 2.63	11.685
	Hygea	36.0	49.0	2.3	38 49.10	2 46.142		
	6760, B. A. C.	55.0	8.5	21.7	41 8.40	2 34.475	0 2.80	11.585
	Hygea	58.2	11.2	24.2	41 11.20	2 46.060		
	6760, B. A. C.	58.5	11.7	25.0	44 11.73	2 34.196	+ 0 3.27	— 11.733
	Hygea	2.7	14.2	28.1	44 15.00	2 45.929		
. 9	6760, B. A. C.	12.5	25.3	38.3	21 25.37	3 39.621	+ 4 45.63	+ 37.750
	Hygea	58.0	11.0	24.0	26 11.00	2 31.783		
	6760, B. A. C.	9.2	22.0	35.4	28 22.20	3 39.431	4 45.80	37.555
	Hygea	55.0	8.0	21.0	33 8.00	2 31.788		
	6760, B. A. C.	40.5	33.2	6.0	35 53.23	3 39.292	4 45.84	37.532
	Hygea	26.2	39.0	52.0	40 39.07	2 31.672		
	6760, B. A. C.	27.4		53.5	46 40.45	3 38.910	+ 4 45.55	+ 37.824
	Hygea	13.0	26.0	39.0	51 26.00	2 30.998		
. 13	37873, Lalande	16.0	29.2	42.9	11 29.37	2 38.891	+ 0 35.73	— 12.259
	Hygea	52.3	5.0	18.0	12 5.10	2 51.150		
	37873, Lalande	19.1	32.9	45.0	14 32.33	2 39.081	0 35.10	11.930
	Hygea	54.3	7.1	20.9	15 7.43	2 51.011		
	37873, Lalande	0.7	13.9	27.3	17 13.97	2 38.891	0 35.40	11.861
	Hygea		49.3	2.7	17 49.37	2 50.752		
	37873, Lalande	35.2	48.9	2.0	18 48.70	2 38.779	0 35.43	12.065
	Hygea	11.2	24.0	37.2	19 24.13	2 50.844		
	37873, Lalande	46 2	59.1	11.9	20 59.07	2 38.750	0 35.13	12,022
	Hygea	21.7	34.2	48.2	21 34.20	2 50.772		
	37873, Lalande	30.0	43.2	56.0	23 43.07	2 38.679	0 36.19	11.723
	Hygea	6.2	19.6	32.0	24 19.26	2 50.402		
	37873, Lalande	35.7	49.0	2.2	25 48.97	2 38.626	0 35.86	11.776
	Hygea	11.9	25.1	37.5	26 24.83	2 50.402		
	37873, Lalande	10.2	23.2	36.0	30 23.13	2 38.560	0 36.05	11.679
	Hygea		59.3	12.0	30 59.18	2 50.239		
	37873, Lalande	35.2	48.0	1.0	6 35 48.07	2 38.322	+ 0 36.10	— 11.818
	Hygea	11.0	24.3	37.2	36 24.17	2 50.140		

RESULTS.

Corr. Chron. + 18.25 s.

	α h. m. s.	δ ° ′ ″
6760, B. A. C.	19 37 37.87	—20 6 51.51

Hygea — 6760, B. A. C. M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
6 33 19.22	+ 0 2.44	— 3 0.45
Δ ρ	— .01	— .23
p	+ .07	+ 2.15

Corr. Chron. + 14.72 s.

	α h. m. s.	δ ° ′ ″
6760, B. A. C.	19 37 37.82	—20 6 51.62

Hygea — 6760, B. A. C. M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
6 38 5.74	+ 4 45.71	+ 9 35.51
Δ t	.75	
Δ ρ	.03	.82
p	+ .08	+ 2.09

Corr. Chron. + 12.64 s.

	α h. m. s.	δ ° ′ ″
37873, Lalande,	19 47 40.91	—19 40 43.85

Hygea — 37873, Lalande, M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
6 24 42.26	+ 0 35.77	— 3 2.71
Δ t	+ .10	
Δ ρ	— .01	— .24
p	+ .07	+ 2.05

(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Nov. 13	37873, Lalande . .	59.2		25.1	6 40 12.15	2 38.269	+ 0 36.68	— 11.751	
	Hygea	35.5	49.0	2.0	40 48.83	1 50.020			
Nov. 14	37873, Lalande . .	25.2	38.0	51.2	6 3 38.13	2 46.587	+ 1 49.27	+ 1.585	
	Hygea	14.0	27.2	41.0	5 27.40	2 45.002			Corr. Chron. s. + 12.36
	37873, Lalande . .	53.3	6.5	19.1	9 6.30	2 46.481	1 49.80	1.471	α h. m. s. δ ° ′ ″
	Hygea	43.0	56.1	9.2	10 56.10	2 45.010			37873, Lalande, 19 47 40.89 —19 40 43.87
	37873, Lalande . .	52.1	5.2	18.6	15 5.30	2 46.421	1 49.87	1.651	Hygea—37873, Lalande, Δ α Δ δ
	Hygea	42.0	55.2	8.3	16 55.17	2 44.770			M. T. h. m. s. m. s. ′ ″
	37873, Lalande . .	48.7	1.9	15.3	22 1.97	2 46.303	1 49.20	1.780	6 17 38.37 + 1 49.71 + 0 25.88
	Hygea	38.5	51.0	4.0	23 51.17	2 44.523			Δ t .30
	37873, Lalande . .	54.9	8.1	21.0	27 8.00	2 46.242	+ 1 50.40	+ 1.932	Δ ρ .00 .03
	Hygea	45.2	58.7	11.3	28 58.40	2 44.340			p + .07 + 2.06
Nov. 21	38290, Lalande . .	45.2	58.0	11.2	6 46 58.13	2 26.978	+ 1 2.00	— 11.163	Corr. Chron. s. — 9.24
	Hygea	47.0	0.4	13.0	48 0.13	2 38.141			
	38290, Lalande . .	0.0	13.1	26.9	49 13,33	2 26.990	1 2.67	11.052	α h. m. s. δ ° ′ ″
	Hygea	3.0	16.0	29.0	50 16.00	2 38.042			38290, Lalande, 19 56 22.45 —19 11 18.80
	38290, Lalande . .	25.7	38.6	51.7	51 38.67	2 26.948	1 2.33	10.927	Hygea—38290, Lalande, Δ α Δ δ
	Hygea	28.0	41.0	54.0	52 41.00	2 37.875			M. T. h. m. s. m. s. ′ ″
	38290, Lalande . .	38.2	51.0	4.3	53 51.17	2 26.773	1 2.66	10.900	7 1 22.79 + 1 2.78 — 2 46.51
	Hygea	41.0	54.0	6.5	54 53.83	2 37.673			Δ t + .17
	38290, Lalande . .	14.9	27.9	41.0	56 27.93	2 26.658	1 2.07	10.900	Δ ρ — .02 — .33
	Hygea	17.0	30.0	43.0	57 30.00	2 37.558			p + .10 + 1.88
	38290, Lalande . .	33.3	46.5	59.7	7 6 46.50	2 25.390	1 3.50	10.829	
	Hygea	37.0	50.0	3.0	7 50.00	2 36.219			
	38290, Lalande . .	55.2		21.7	9 8.45	2 25.369	1 3.52	10.350	
	Hygea	59.0	11.9	25.0	10 11.97	2 35.719			
	38290, Lalande . .	33.0	45.9	59.1	11 46.00	2 24.983	1 3.07	10.687	
	Hygea	36.2	49.0	2.0	12 49.07	2 35.670			
	38290, Lalande . .	34.1	46.5	59.7	15 46.77	2 24.650	+ 1 3.23	— 10.700	
	Hygea	37.5	50.3	3.7	16 50.00	2 35.350			
Nov. 24	6903, B. A. C. . .	31.0	43.5	57.1	6 7 43.87	3 37.882	+ 1 43.13	+ 45.054	Corr. Chron. s. + 8.25
	Hygea		27.0		9 27.00	2 22.740			α h. m. s. δ ° ′ ″
	6903, B. A. C. . .	39.7	52.6	5.7	13 52.67	3 37.760	1 43.00	45.277	6903, B. A. C. 19 59 33.89 —19 13 50.56
	Hygea	22.5	36.0	48.5	15 35.67	2 22.395			Hygea—6903, B. A. C. Δ α Δ δ
	6903, B. A. C. . .	49.6	2.7	16.1	19 2.80	3 37.592	1 43.20	45.289	M. T. h. m. s. m. s. ′ ″
	Hygea	33.0	46.0	59.0	20 46.00	2 22.215			6 18 13.67 + 1 43.25 +11 34.95
	6903, B. A. C. . .	36.2	49.0	2.8	6 24 49.33	3 37.400	+ 1 43.67	+ 45.252	Δ t .28
	Hygea	20.0	33.0	46.0	26 33.00	2 22.060			Δ ρ .04 1.04
									p + .08 + 1.92

COMET 1850, I.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
June 2	(° 9)	22.0	5.1	48.1	14 28 5.07	1 51.298	+ 0 30.63	+ 42.732
	Comet 1850, I. . .	52.5	32.5	19.1	28 35.70	3 34.950		
	(° 9)	32.1	15.4	57.9	32 15.13	1 51.342	0 29.97	43.329
	Comet 1850, I. . .	2.0	45.0	28.3	32 45.10	3 34.591		
	(° 9)	18.5	1.3	44.2	36 1.33	1 51.295	0 28.87	43.495
	Comet 1850, I. . .	46.6	29.7	14.3	36 30.20	3 34.710		
	(° 9)	53.2	37.0	19.7	40 36.63	1 51.449	0 27.57	43.263
	Comet 1850, I. . .	21.5	4.1	47.0	41 4.20	3 34.632		
	(° 9)	50.0	34.1	17.9	45 34.00	1 51.319	0 26.70	43.146
	Comet 1850, I. . .	17.1	1.0	44.0	46 0.70	3 34.385		
	(° 9)	7.8	52.0	34.2	53 51.33	1 51.192	0 22.74	43.647
	Comet 1850, I. . .	31.5	14.0	56.7	54 14.07	3 34.759		
	(° 9)	13.5	57.2	40.0	58 56.90	1 51.066	0 21.90	43.044
	Comet 1850, I. . .	34.6	19.1	2.7	59 18.50	3 34.030		
	(° 9)	19.5	2.0	47.0	15 8 2.83	1 50.880	0 19.47	42.588
	Comet 1850, I. . .	39.2	22.0	5.7	8 22.30	3 33.388		
	(° 9)	54.1	37.5	22.0	16 37.87	1 51.037	0 16.56	41.967
	Comet 1850, I. . .	12.3	54.1	36.9	16 54.43	3 32.924		
	(° 9)	55.1	38.4		20 37.75	1 51.872	+ 0 16.95	41.068
	Comet 1850, I . . .	12.9	54.5	36.7	20 54.70	3 32.860		
	Comet 1850, I. . .	34.0	17.0	58.0	16 21 16.33	3 32.389		
	(° 9)	39.0	22.0		21 21.33	2 22.352	— 0 5.00	39.939
	Comet 1850, I. . .	0.0	44.2	28.0	43 44.07	3 32.326		
	(° 9)	11.2	54.2	38.1	43 54.50	2 22.086	— 0 10.43	+ 40.152
June 3	2418, Groomb. . .	43.7	26.2	9.2	14 33 26.37	1 47.410	+ 7 8.78	+ 47.927
	2420, Groomb. . .		21.7	4.2	33 21.92	2 44.153	6 13.23	21.016
	Comet 1850, I. . .		35.0	18.0	39 35.15	3 35.257		
	2418, Groomb. . .	43.5	26.2	9.2	49 26.30	1 47.560	7 4.56	46.250
	2420, Groomb. . .	39.1	21.8	4.0	50 21.63	2 44.243	6 9.23	19.399
	Comet 1850, I. . .	48.0	30.5	14.1	56 30.86	3 33.730		
	2418, Groomb. . .	55.1	39.1	21.7	15 1 38.63	1 47.857	7 1.04	45.671
	2420, Groomb. . .	49.8	34.1	16.2	2 33.37	2 44.532	6 6.30	18.828
	Comet 1850, I. . .	56.0	40.0	23.0	8 39.67	3 33.448		
	2418, Groomb. . .	30.1	13.3	55.5	14 12.96	1 47.592	6 57.85	45.121
	2420, Groomb. . .	24.5	8.7	54.3	15 9.16	2 44.125	6 1.65	18.420
	Comet 1850, I. . .		10.5	54.0	21 10.81	3 32.633		
	2418, Groomb. . .	31.7	14.2	57.5	27 14.47	1 47.621	+ 6 52.95	+ 44.819
	2420, Groomb. . .	26.8	9.3	52.0	28 9.37	2 44.283	5 58.05	17.989
	Comet 1850, I. . .		7.0	50.5	34 7.42	3 32.360		
June 4	5769, B. A. C. . .	57.1	39.7	22.0	14 15 39.60	2 44.632	+ 4 3.57	+ 9.913
	Comet 1850, 1. . .	59.5	43.0	27.0	19 43.17	2 54.545		
	2418, Groom. . .	13.2	56.0	39.0	19 56.07	2 56.168	— 0 12.90	— 1.623
	5769, B. A. C. . .	22.0	5.1	48.1	24 5.07	2 44.511	+ 4 1.00	+ 8.949
	Comet 1850, I. . .	23.0	6.2	49.0	28 6.07	2 53.460		
	2418, Groom. . .	39.0	22.0	4.0	28 21.67	2 56.091	— 0 15.60	— 2.631
	5769, B. A. C. . .	21.5	5.1	48.1	32 4.90	2 44.510	+ 3 58.10	+ 9.259
	Comet 1850, I. . .	19.5	3.0	46.5	36 3.00	2 53.769		
	2418, Groom. . .	38.4	21.5	4.0	14 36 21.30	2 56.111	— 0 18.30	— 2.342

RESULTS.

Corr. Chron. — 0 h. m. s. 58.70

	α h. m. s.	δ ° ′ ″
(° 9)	17 17 47.11	+73 35 56.50

Comet—(° 9)		Δ α m. s.	Δ δ ′ ″
Sid. T.	15 h. 8 m. 9.68 s.	+ 0 18.82	+10 51.11
	Δ ρ	— .08	— .23
	p	— .82	— 3.79

Corr. Chron. — 58.03 s.

	α h. m. s.	δ ° ′ ″
2418, Groomb.,	17 3 38.10	+73 24 16.71
2420, Groomb.,	17 4 33.81	73 31 15.40

Comet—2418, Groomb,		Δ α m. s.	Δ δ ′ ″
Sid. T.	15 h. 7 m. 2.75 s.	+ 7 1.04	+11 46.15
	Δ ρ	— .09	— .26
	p	— .79	— 3.92

Comet—2420, Groomb.		m. s.	′ ″
Sid. T.	15 h. 7 m. 2.75 s.	+ 6 5.69	+ 4 54.01
	Δ ρ	— .04	— .11
	p	— .80	— 3.94

(Continued.)

COMET 1850, I.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	m. s.
June 4	5769, B. A. C.	17.2	59.4	42.1	14 38 59.57	2 44.402	+ 3 55.63	+ 8.851
	Comet 1850, I.	11.5	56.0		42 55.20	2 53.253		
	2418, Groomb.	32.5	15.5	59.1	43 15.70	2 56.129	— 0 20.50	— 2.876
	5769, B. A. C.	19.7	3.5	45.2	46 2.80	2 44.301	+ 3 53.93	+ 8.744
	Comet 1850, I.	13.0	56.7	40.5	49 56.73	2 53.045		
	2418, Groomb.	36.0	19.0	2.0	50 19.00	2 55.891	— 0 22.27	— 2.846
	5769, B. A. C.	19.5	3.7	47.1	53 3.43	2 44.220	+ 3 51.57	+ 7.691
	Comet 1850, I.	13.0	55.0	37.0	56 55.00	2 51.911		
	2418, Groomb.	36.2	20.0	3.0	57 19.73	2 55.968	— 0 24.73	— 4.057
	5769, B. A. C.	36.1	19.2	1.7	15 0 19.00	2 44.205	+ 3 48.17	+ 7.097
	Comet 1850, I.	24.0	6.0	51.5	4 7.17	2 51.302		
	2418, Groomb.		33.7	18.0	4 34.67	2 55.890	— 0 27.50	— 4.588
	5769, B. A. C.	57.3	39.7	23.0	7.40.00	2 44.159	+ 3 47.73	+ 7.621
	Comet 1850, I.	44.0	28.2	11.0	11 27.73	2 51.780		
	2418, Groomb.	13.2	57.0	39.2	11 56.47	2 55.790	— 0 28.74	— 4.010
	5769, B. A. C.	35.8	18.9	1.8	15 18.83	2 43.983	+ 3 45.85	+ 7.570
	Comet 1850, I		4.3	48.1	19 4.68	2 51.553		
	2418, Groomb.	53.0	35.0	18.0	19 35.33	2 55.618	— 0 30.65	— 4.065
	5769, B. A. C.	54.1	37.2	19.2	22 36.83	2 44.083	+ 3 42.30	+ 7.167
	Comet 1850, I.		19.0	2.0	26 19.13	2 51.250		
	2418, Groomb.		53.0	36.0	26 53.13	2 55.445	— 0 34.00	— 4.195
June 5	Comet 1850, I.	4.8	47.0	28.1	14 40 46.63	1 45.843		
	(° 10)	3.0	46.1	28.1	41 45.73	1 47.215	— 0 59.10	— 1.372
	5769, B. A. C.	43.2	25.7	8.2	44 25.70	3 34.157	3 39.07	48.394
	Comet 1850, I.	6.5	48.0	30.2	48 48.23	1 47.316		
	(° 10)		50.3	32.0	49.50.28	1 49.017	1 2.05	1.701
	5769, B. A. C.	47.2	30.1	11.0	51 29.43	3 36.130	3 41.20	48.894
	Comet 1850, I.	28.0		52.0	55 10.00	1 47.124		
	(° 10)		13.5	55.6	56 13.05	1 48.940	1 3.05	1.816
	5769, B. A. C.	9.7	52.0		58 51.85	3 35.750	3 41.85	48.706
	Comet 1850, I.	46.0	28.4	11.0	15 3 28.47	1 47.206		
	(° 10)	51.7	34.0	17.2	4 34.30	1 49.526	1 5.83	2.320
	5769, B. A. C.	32.1	14.5	57.0	7 14.53	3 36.527	3 46.06	49.401
	Comet 1850, I.	22.7	3.5		13 4.27	1 46.627		
	(° 10)	31.3	14.1	56.2	14 13.87	1 49.218	1 9.60	2.591
	5769, B. A. C.	10.0	53.2	36.0	16 53.07	3 36.260	3 48.80	49.713
	Comet 1850, I.	17.3	59.2	42.0	18 59.50	1 46.023		
	(° 10)	29.1	11.2	53.1	20 11.13	1 49.162	1 11.63	3.139
	5769, B A. C.	7.7	50.1	33.0	22 50.27	3 36.221	3 50.77	50.278
	Comet 1850, I.	32.0	13.2	56.0	26 13.73	1 45.521		
	(° 10)	45.7		9.0	27 27.35	1 49.066	1 13.62	3.545
	5769, B. A. C.	24.0	7.0	49.2	30 6.73	3 36.182	3 53.00	50.741
	Comet 1850, I.	23.0	5.2	47.3	33 5.17	1 44.851		
	(° 10)	39.5		4.0	34 21.75	1 49.087	1 16.58	4.236
	5769, B. A. C.	18.5	1.2	43.8	37 1.17	3 35.940	3 56.00	51.169
	Comet 1850, I.	46.0	28.5	11.0	46 28.50	1 46.221		
	(° 10)	7.0	49.4	31.0	47 49.13	1 50.459	1 20.63	4.238
	5769, B. A. C.	45.7	28.0	11.0	50 28.23	3 37.510	— 3 59.73	— 51.369
June 9	Comet 1850, I.	48.1		6.5	14 19 28.30	2 49.637		
	2356, Groomb.	33.1	11.0	49.0	21 11.03	2 34.316	— 1 42.73	+ 15.321
	Comet 1850, I.	4.2	42.0	23.0	14 24 43.07	2 48.934		
	2356, Groomb.		29.2	8.0	26 29.17	2 34.352	— 1 46.10	+ 14.582

RESULTS.

Corr. Chron. — 56.50 s.

	α h. m. s.	δ ° ′ ″
5769, B. A. C.,	16 59 20.91	+73 21 16.44
2418, Groomb.,	17 3 38.10	73 24 17.03

Comet — 5769, B. A. C,		Δ α m. s.	Δ δ ′ ″
Sid. T.	14 52 31.29	+ 3 52.78	+ 2 7.34
	Δρ	— .02	— .05
	p	— .84	— 3.91

Comet — 2418, Groomb.			
Sid. T.	14 52 31.29	— 0 23.52	— 0 51.07
	Δρ	.00	+ .02
	p	— 85	— 3.93

Corr. Chron. — 55.27 s.

	α h. m. s.	δ ° ′ ″
(° 10)	16 56 41.02	+73 9 11.94
5769, B. A. C.,	16 59 21.14	73 21 16.82

Comet — (° 10)		Δ α m. s.	Δ δ ′ ″
Sid. T.	15 10 51.90	— 1 9.21	— 0 42.62
	Δρ	.00	+ .02
	p	— .71	— 5.18

Comet — 5769, B. A. C.			
Sid. T.	15 10 51.90	— 3 48.50	—12 46.21
	Δρ	+ .08	+ .30
	p	— .63	— 5.24

(Continued.)

COMET 1850, I.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Comet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w.	revs	m. s.	revs.
e 9	Comet 1850, I.	38.1	16.0	54.3	14 31 16.13	2	48.127		
	2356, Groomb.	27.1	6.0	45.0	33 6.03	2	34.147	— 1 49.90	+ 13.980
	Comet 1850, I.	9.7	49.0	28.0	40 48.90	2	47.604		
	2356, Groomb.	2.0	41.0	20.0	42 41.00	2	34.147	— 1 52.10	+ 13.457
e 10	A. Z., 115, 164	8.5	46.1	23.0	15 22 45.87	1	39.412	+ 1 36.03	+ 25.634
	A. Z., 115, 165		55.1	33.2	22 55.47	2	34.022	1 26.43	0.857
	Comet 1850, I.	44.0	22.1	59.6	24 21.90	2	34.879		
	A. Z., 115, 164	43.1	21.4	59.2	28 21.23	1	39.510	1 34.67	25.577
	A. Z., 115, 165	53.2	31.2	9.7	28 31.37	2	34.180	1 24.53	0.740
	Comet 1850, I.	18.2	56.3	33.2	29 55.90	2	34.920		
	A. Z., 115, 164	20.2	58.0	36.1	32 58.10	1	40.612	1 32.97	25.355
	A. Z., 115, 165	29.7	7.8	46.2	33 7.90	2	35.043	1 23.17	0.757
	Comet 1850, I.	53.2	31.0	9.0	34 31.07	2	35.800		
	A. Z., 115, 164	6.2	44.2		36 44.25	1	40.621	1 31.58	25.004
	A. Z., 115, 165	15.7	54.0	32.0	36 53.90	2	35.132	1 21.93	0.326
	Comet 1850, I.	38.0	16.5	53.0	38 15.83	2	35.458		
	A. Z., 115, 164	29.2	8.2	46.0	41 7.80	1	40.620	1 31.50	24.877
	A. Z., 115, 165	39.1	18.1	56.0	41 17.73	2	35.220	1 21.57	0.110
	Comet 1850, I.	0.0	41.7	16.2	42 39.30	2	35.330		
	A. Z., 115, 164	41.8	20.0	58.0	48 19.93	1	40.720	1 28.20	+ 24.299
	A. Z., 115, 165	51.3	30.2	8.0	48 29.83	2	35.337	1 18.30	— 0.485
	Comet 1850, I.	10.0	48.2	26.2	49 48.13	2	34.852		
	A. Z., 115, 164	54.7	33.1		52 33.20	1	40.695	1 26.70	+ 23.583
	A. Z., 115, 165	4.2	42.0	21.0	52 42.40	2	35.160	1 17.50	— 1.049
	Comet 1850, I.	22.2	59.0		53 59.90	2	34.111		
	A. Z., 115, 164	34.1	12.0		16 15 12.00	1	41.816	1 17.75	+ 21.080
	A. Z., 115, 165	43.2	21.0	59.0	15 21.07	2	36.650	1 8.68	— 3.921
	Comet 1850, I.	51.0		8.5	16 29.75	2	32.729		
	A. Z., 115, 164	41.3			18 19.60	1	41.289	1 17.43	+ 21.447
	A. Z., 115, 165	50.7	29.1	7.2	18 29.00	2	36.792	1 8.03	— 4.221
	Comet 1850, I.	59.0	37.0	15.1	19 37.03	2	32.571		
	A. Z., 115, 164	37.1	15.7	52.0	22 14.93	1	40.512	1 16.87	+ 21.203
	A. Z., 115, 165	46.7	25.1	2.1	22 24.63	2	35.061	1 7.17	— 3.513
	Comet 1850, I.	54.1		9.5	23 31.80	2	31.548		
	A. Z., 115, 164	5.7	43.7	22.0	26 43.80	1	41.108	1 15.60	+ 20.579
	A. Z., 115, 165	15.0	54.0	32.3	26 53.77	2	35.534	+ 1 5.63	— 4.014
	Comet 1850, I.	21.0	0.2	37.0	27 59.40	2	31.520		
e 11	2319, Groomb.	14.0	50.9	27.1	14 35 50.67	1	42.472	+ 4 48.65	+ 40.233
	A. Z., 115, 56	12.5	48.7	26.1	38 49.10	1	56.629	1 50.22	26.076
	Comet 1850, I.	2.5		15.9	40 39.32	2	52.538		
	2319, Groomb.	17.1	53.9	31.2	42 54.07	1	42.430	4 44.66	39.630
	A. Z., 115, 56	15.1	51.0	28.7	45 51.60	1	56.538	1 47.13	25.522
	Comet 1850, I.	1.0	39.2	16.0	47 38.73	2	51.893		
	2319, Groomb.	13.1	49.2	26.3	49 49.53	1	42.322	4 42.94	39.118
	A. Z., 115, 56	9.5	47.0	23.8	52 46.77	1	56.642	1 45.70	24.798
	Comet 1850, I.	56.2	32.0	9.2	54 32.47	3	51.273		
	2319, Groomb.	20.8	58.0	35.0	56 57.93	1	46.289	4 40.27	38.309
	A. Z., 115, 56	18.0	55.1	32.0	59 55.03	1	60.630	1 43.17	23.968
	Comet 1850, I.	1.0	38.4	15.2	15 1 38.20	2	54.431		
	2319, Groomb.	23.2	0.8	37.2	5 0.40	1	46.387	4 38.55	37.717
	A. Z., 115, 56	20.7	58.0	35.0	7 57.90	1	60.477	+ 1 41.05	+ 23.627
	Comet 1850, I.	2.0		15.5	9 38.95	2	53.937		

RESULTS.

Corr. Chron. — 0 m. 48.82 s.

	α h. m. s.	δ ° ′ ″
2356, Groomb.,	16 27 2.60	+71 43 14.49

Comet—2356, Groomb.,	Δ α m. s.	Δ δ ′ ″
Sid. T. 14 28 15.28	— 1 47.71	+ 3 40.32
Δ ρ	+ .02	— .08
p	— .76	— 4.66

Corr. Chron. — 0 m. 48.31 s.

	α h. m. s.	δ ° ′ ″
A. Z., 115, 164,	16 15 49.74	+71 12 27.22
165,	16 15 59.07	71 18 28.85

Comet—A. Z., 115, 164,	Δ α m. s.	Δ δ ′ ″
Sid. T. 15 53 50.78	+ 1 26.30	+ 6 1.11
Δ ρ	.00	— .14
p	— .16	— 5.17

Comet—A. Z., 115, 165.

Sid. T. 15 53 50.78	+ 1 16.63	— 0 20.13
Δ ρ	.00	+ .01
p	— .16	— 5.21

Corr. Chron. — 0 m. 47.50 s.

	α h. m. s.	δ ° ′ ″
2319, Groomb.	16 5 26.12	+70 39 55.36
A. Z., 115, 156,	16 8 23.76	70 43 35.37

Comet—2319, Groomb.,	Δ α m. s.	Δ δ ′ ″
Sid. T. 14 57 37.36	+ 4 41.82	+ 9 54.50
Δ ρ	— .01	— .22
p	— .21	— 5.12

Comet—A. Z., 115, 156.

Sid. T. 14 57 37.36	+ 1 44.21	+ 6 15.98
Δ ρ	— .01	— .14
p	— .22	— 5.15

(Continued.)

COMET 1850, I.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
June 11	2319, Groomb. . .	8.2	45.8	23.0	15 11 45.67	1 46.577	+ 4 35.85	+ 37.075
	A. Z., 115, 156 . .	5.8	43.5	20.7	14 43.33	1 60.869	+ 1 38.19	+ 22.783
	Comet 1850, I. . .	44.4		58.5	16 21.52	2 53.485		
June 12	(° 21)	38.1	13.7		9 13.79	1 51.631	+ 3 59.76	+ 32.126
	(° 22)	40.2		52.0	10 16.10	1 56.425	2 57.45	27.332
	Comet 1850, I. . .	37.1		50.0	13 13.55	2 53.590		
	(° 21)	58.1	34.0	10.1	19 34.07	1 51.750	3 57.69	31.542
	(° 22)	0.0	36.2	13.1	20 36.43	1 56.519	2 55.33	26.773
	Comet 1850, I. . .	55.7			23 31.76	2 53.125		
	(° 21)	41.0	17.0	53.0	27 17.00	1 51.970	3 56.23	31.045
	(° 22)	43.1	19.3	55.2	28 19.20	1 56.589	2 54.03	26.426
	Comet 1850, I. . .	37.7	13.0	49.0	31 13.23	2 52 848		
	(° 21)	27.0	3.5		37 3.42	1 52.195	3 52.88	31.045
	(° 22)	29.5	5.0	41.0	38 5.17	1 56.919	+ 2 51.13	+ 26.321
	Comet 1850, I. . .	19.5	56.5	33.1	40 56.30	2 53.073		
June 13	Comet 1850, I. . .	36.0		46.2	14 50 11.20	2 43.605		
	A. Z., 114, 4 . .	28.0	3.2	38.1	54 3.10	2 28.127	— 3 52.00	+ 14.478
	A. Z., 114, 5 . .	49.2	24.1	0.5	54 24.60	2 31.921	4 13.50	11.684
	Comet 1850, I. . .	9.2	14.3	19.2	57 44.23	2 44.232		
	A. Z, 114, 4 . .	4.0	39.7	14.4	15 1 39.37	2 29.612	3 55.14	14.620
	A. Z., 114, 5 . .	25.3	1.0	36.1	2 0.80	2 32.330	4 16.57	11.902
	Comet 1850, I. . .	39.7	14.3	49.5	6 14.50	2 43.352		
	A. Z., 114, 4 . .	36.0	11.2	47.1	10 11.43	2 29.669	3 56.93	13.683
	A. Z., 114, 5 . .	58.1	33.6	8.0	10 32.23	2 32.489	4 18.73	10.863
	Comet 1850. I. . .	21.7	57.1	32.0	42 56.93	2 41.171		
	A. Z., 114, 4 . .	31.4	5.1	40.3	47 5.60	2 31.411	4 8.67	9.760
	A Z, 114, 5 . .	51.2		2.0	47 26.60	2 34.179	4 29.67	6.992
	Comet 1850, I. . .	6.5	41.2	16.0	52 41.23	2 40.110		
	A. Z., 114, 4 . .	16.4	51.7	27.3	56 51.80	2 31.482	4 10.57	8.628
	A. Z., 114, 5 . .	38.5	14.2	49.0	57 13.90	2 34.141	4 32.67	5.969
	Comet 1850, I. . .		7.5	43.0	16 0 7.60	2 39.759		
	A. Z, 114, 4 . .	44.5	19.7	55.2	4 19.80	2 31.367	4 12.20	8.392
	A. Z., 114, 5 . .	6.2	41.7	17.2	4 41.70	2 34.207	4 34.10	5.552
	Comet 1850, I. . .	45.0	21.2	55.9	7 20.70	2 39.676		
	A. Z., 114, 4 . .	0.0	35.1		11 35.10	2 31.789	4 14.40	7.887
	A. Z., 114, 5 . .	21.5	57.2	32.0	11 56.90	2 34.551	4 36.20	5.125
	Comet 1850, I. . .	8.0	42.3	18.0	15 42.77	2 41.932		
	A. Z, 114, 4 . .	27.1	2.1	37.2	20 2.13	2 34.658	4 19.36	7.274
	A. Z., 114, 5 . .	49.0	24.1	59.3	20 24.13	2 37.535	— 4 41.36	+ 4.397
June 19	Comet 1850, I. . .	23.7	52.3	21.0	14 44 52.30	2 31.725		
	(° 12)	3.0	31.7		46 31.65	1 45.521	— 1 39.35	+ 16.371
	Comet 1850, I. . .	19.5	47.9	16.0	48 47.80	2 31.607		
	(° 12)	0.2	29.5	58.1	50 29.27	1 45.900	1 41.47	15.874
	Comet 1850, I. . .	43.8	11.9	41.5	52 12.40	2 30.853		
	(° 12)	25.1	54.2		53 54.20	1 45.624	1 41.80	15.396
	Comet 1850, I. . .	45.7		43.0	56 14.35	2 30.416		
	(° 12)	29.4		26.1	57 57.75	1 45.508	1 43.40	15.075
	Comet 1850, I. . .	31.5	0.3	28.5	15 0 0.10	2 30.271		
	(° 12)	14.7	42.7	11.9	1 43.10	1 45.646	— 1 43.00	+ 14.792

RESULTS.

June 11

Corr. Chron. — 0 m. 46.34 s.

	α h. m. s.	δ ° ′ ″
(° 21)	15 58 43.68	+70 7 31.8
(° 22)	15 59 45.77	70 8 38.1

Comet—(° 21)	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	15 26 27.37	+ 3 56.64	+ 8 3.3
	Δρ	— .01	— .1
	p	— .24	— 5.05

Comet—(° 22)	h. m. s.	m. s.	′ ″
Sid. T.	15 26 27.37	+ 2 54.48	+ 6 50.52
	Δρ	— .01	— .15
	p	— .24	— 5.05

June 13

Corr. Chron. — 0 m. 43.33 s.

	α h. m. s.	δ ° ′ ″
A. Z., 114, 4,	15 59 35.50	+69 38 1.08
A. Z., 114, 5,	15 59 56.86	69 38 46.69

Comet—A. Z., 114, 4,	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	15 35 54.05	— 4 6.16	+ 2 42.77
	Δρ	.00	— .06
	p	— .14	— 5.26

Comet—A. Z., 114, 5.	h. m. s.	m. s.	′ ″
Sid. T.	15 35 54.05	— 4 27.75	+ 2 0.03
	Δρ	.00	— .05
	p	— .14	— 5.26

June 19

Corr. Chron. — 0 m. 34.52 s.

	α h. m. s.	δ ° ′ ″
(° 12)	15 18 16.75	+64 58 14.28

Comet—(° 12)	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	14 56 54.37	— 1 43.35	+ 3 47.60
	Δρ	.00	— .06
	p	— .12	— 5.14

(Continued.)

COMET 1850, I.

.TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Comet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	m. s.
50.									
3 19	Comet 1850, I. . .	12.9	41.3	9.7	15 7 41.30	2	28.648		
	(° 12)	58.9	28.1	58.9	9 28.63	1	45.071	— 1 47.33	+ 13.744
	Comet 1850, I. . .	5.2	34.0	2.7	12 33.97	2	27.953		
	(° 12)	52.1	21.5	49.7	14 21.10	1	45.710	— 1 47.13	+ 12.410
3 24	Comet 1850, I. . .	56.7	19.8	44.1	15 6 20.20	2	53.420		
	A. Z., 7, 26 . . .		13.0	37.2	10 13.35	2	31.210	— 3 53.15	+ 22.210
	Comet 1850, I. . .	52.5	16.5	39.5	13 16.17	2	51.980		
	A. Z., 7, 26 . . .		11.2	35.3	17 11.37	2	32.322	3 55.20	19.658
	Comet 1850, I. . .	17.5	41.5	5.0	33 41.33	2	36.222		
	A. Z., 7, 26 . . .			3.7	37 40.03	2	20.792	3 58.70	15.430
	Comet 1850, I. . .	46.7		34.7	41 10.70	2	34.723		
	A. Z., 7, 26 . . .	46.8	11.2	34.8	45 10.93	2	20.702	— 4 0.23	+ 14.021
3 29	(° 14)	25.2	45.0	4.0	18 34 44.73	1	38.730	+ 0 24.20	+ 51.788
	Comet 1850, I. . .	49.3	9.2	28.3	35 8.93	3	30.438		
	(° 14)	48.1		26.5	38 7.30	1	38.985	0 22.80	50.295
	Comet 1850, I. . .	10.5		49.7	38 30.10	3	29.200		
	(° 14)	43.2	2.5		40 2.50	1	38.742	0 22.20	49.657
	Comet 1850, I. . .		24.7	44.2	41 24.70	3	28.319		
	(° 14)	41.5	1.0	20.3	44 0.93	1	38.600	0 22.14	48.784
	Comet 1850, I. . .	3.5	23.2	42.5	44 23.07	3	27.304		
	(° 14)	37.4	57.5	17.0	46 57.30	1	38.850	0 21.43	47.689
	Comet 1850, I. . .	59.0	18.7	38.5	47 18.73	3	26.459		
	(° 14)	21.3	41.0	0.2	50 40.83	1	38.835	0 21.07	46.819
	Comet 1850, I. . .	42.5	1.7	21.5	51 1.90	3	25.574		
	(° 14)	32.0	52.0	11.0	53 51.70	1	38.853	0 20.36	45.757
	Comet 1850, I. . .	53.0	11.2	32.0	54 12.06	3	24.530		
	(° 14)	36.1	55.0	14.6	56 55.23	1	38.777	0 19.90	44.912
	Comet 1850, I. . .	55.2	15.0	35.2	57 15.13	3	23.609		
	(° 14)	41.3	1.0	20.0	19 0 0.76	1	38.815	0 19.47	43.645
	Comet 1850, I. . .	0.8	19.7	40.2	0 20.23	3	22.380		
	(° 14)	24.1	44.0	3.7	5 43.93	1	38.788	+ 0 19.87	+ 43.062
	Comet 1850, I. . .	44.2	4.2	23.0	6 3.80	3	21.770		
e 30	(° 15)	34.2	53.0		18 23 52.97	3	21.550	+ 1 3.10	+ 7.900
	Comet 1850, I. . .	37.2	56.2	14.8	24 56.07	3	29.450		
	(° 16)		54.1	12.7	25 53.97	2	20.997	— 0 57.97	38.365
	(° 15)	14.2	33.2	52.0	28 33.13	3	21.612	+ 1 1.85	6.393
	Comet 1850, I. . .	16.0	35.1		29 34.98	3	28.005		
	(° 16)	15.0	34.1	52.0	30 33.70	2	19.862	— 0 58.72	38.055
	(° 15)	46.0	4.0	24.0	32 4.66	3	21.499	+ 1 0.17	5.586
	Comet 1850, I. . .	46.5	5.0	23.0	33 4.83	3	27.085		
	(° 16)	46.1	5.0	24.0	34 5.03	2	20.880	— 1 0.20	36.117
	(° 15)	47.0	6.1	25.0	37 6.03	3	21.579	+ 1 0.34	3.791
	Comet 1850, I. . .	48.0	6.1	25.0	38 6.37	3	25.370		
	(° 16)		7.1	25.2	39 6.97	2	21.022	— 1 0.60	34.260
	(° 15)	45.0	3.5	22.0	41 3.50	3	21.620	+ 0 59.56	2.275
	Comet 1850, I. . .	44.2	3.0	22.0	42 3.06	3	23.895		
	(° 16)	44.8	4.0	23.0	18 43 3.93	2	20.910	— 1 0.87	+ 32.897

RESULTS.

Corr. Chron. — 25.77 s.

	α h. m. s.	δ ° ′ ″
A. Z., 7, 26,	14 53 30.83	+59 7 21.52

Comet — A. Z., 7, 26,	Δ α m. s.	Δ δ ′ ″
Sid. T. 15 23 11.33	— 3 56.82	+ 4 34.02
Δρ	.00	— .08
p +	.18	— 4.47

Corr. Chron. — 16.64 s.

	α h. m. s.	δ ° ′ ″
(° 14)	14 27 6.52	+51 11 25.07

Comet — (° 14)	Δ α m. s.	Δ δ ′ ″
Sid. T. 18 49 17.22	+ 0 21 34	+12 6.06
Δρ	.02	— .21
p +	1.21	— 2.15

Corr. Chron. — 15.68 s.

	α h. m. s.	δ ° ′ ″
(° 15)	14 22 16.29	+49 20 43.14
(° 16)	14 24 18.59	49 12 53.42

Comet — (° 15)	Δ α m. s.	Δ δ ′ ″
Sid. T. 18 38 1.50	+ 1 0.09	+ 0 56.13
Δρ	.00	— .01
p +	1.10	— 2.14

Comet — (° 16.)		
Sid. T. 18 38 1.50	— 1 0.37	+ 8 47.90
Δρ +	.01	— .15
p —	1.07	+ 2.21

(Continued.)

COMET 1850, I.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet.—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
June 30	(° 15)	31.3	50.2	9.0	18 46 50.16	3 21.630	+ 0 58.50	+ 0.522
	Comet 1850, I. . .		48.7	7.5	47 48.66	3 22.152		
	(* 16)	32.0	50.3	9.0	48 50.43	2 20.937	— 1 1.77	+ 31.127
	(° 15)	10.0	29.2	48.2	51 29.13	3 21.518	+ 0 57.13	— 0.903
	Comet 1850, I. . .	7.5	26.3	45.0	52 26.26	3 20.615		
	(* 16)		29.0	47.2	53 28.71	2 20.920	— 1 2.45	+ 29.607
July 1	(° 17)	48.1	6.0	24.1	17 47 6.06	2 28.930	+ 1 11.04	+ 8.300
	Comet 1850, I. . .	59.1	17.0	35.2	48 17.10	2 37.230		
	(° 17)	43.7	2.0	19.7	50 1.80	2 28.073	1 10.43	7.806
	Comet 1850, I. . .	54.2	12.3	30.2	51 12.23	2 35.879		
	(° 17)	36.1	54.3	13.0	52 54.47	2 27.932	1 10.56	6.954
	Comet 1850, I. . .	47.1	5.0	23.0	54 5.03	2 34.886		
	(° 17)	8.1	26.0	44.1	55 26.07	2 27.917	1 10.13	6.266
	Comet 1850, I. . .	18.3	36.0	54.3	56 36.20	2 34.183		
	(° 17)	37.6	55.2	13.2	57 55.33	2 27.870	1 9.60	5.537
	Comet 1850, I. . .	47.0	5.0		59 4.93	2 33.407		
	(° 17)	57.3	15.0	33.0	18 0 15.10	2 27.839	1 8.03	4.377
	Comet 1850, I. . .	5.1	23.1	41.2	2 23.13	2 32.216		
	(* 17)	58.1	15.9	34.1	4 16.03	2 27.991	1 9.03	3.194
	Comet 1850, I. . .	7.0	25.2	43.0	5 25.06	2 31.185		
	(° 17)	24.7	42.8	1.0	6 42.83	2 27.873	1 8.20	2.477
	Comet 1850, I. . .	33.1	51.0	9.0	7 51.03	2 30.350		
	(° 17)	58.1	16.0		9 16.37	2 27.890	1 7.00	1.902
	Comet 1850, I. . .	5.0	23.1	42.0	10 23.37	2 29.792		
	(° 17)	26.8	44.6	2.7	11 44.70	2 27.882	+ 1 7.40	+ 0.879
	Comet 1850, I. . .	34.1	52.0	10.2	12 52.10	2 28.761		
July 4	Comet 1850, I. . .	49.2	5.0	22.0	17 4 5.40	2 33.825		
	(° 19)	25.1	41.0	57.0	4 41.03	2 46.960	— 0 35.63	+ 13.135
	Comet 1850, I. . .	42.0	58.5	15.0	7 58.50	2 34.878		
	(° 19)	18.5	33.8	50.8	8 34.37	2 46.980	0 35.87	12.102
	Comet 1850, I. . .	50.2	6.0	23.5	10 6.56	2 36.047		
	(° 19)	27.0	43.1	59.0	10 43.03	2 47.130	0 36.47	11.083
	Comet 1850, I. . .	58.5	15.1	31.2	12 14.83	2 36.880		
	(° 19)	35.2	51.2	8.0	12 51.47	2 47.175	0 36.64	10.295
	Comet 1850, I. . .		21.2	37.1	14 21.93	2 37.352		
	(° 19)	41.0	57.2	13.5	14 57.23	2 47.018	0 36.20	9.666
	Comet 1850, I. . .	13.7	29.3	46.0	16 29.67	2 38.292		
	(° 19)	50.0	6.0	22.9	17 6.30	2 47.918	0 36.63	9.626
	Comet 1850, I. . .	35.0	52.0	7.0	21 51.33	2 40.200		
	(° 19)	13.2	29.2	46.0	22 29.47	2 46.742	— 0 38.14	+ 6.742
July 7	Comet 1850, I. . .	59.1	14.3	29.0	16 28 14.13	1 39.172		
	(° 20)	10.0	25.0	39.2	28 24.73	2 47.212	— 0 10.60	— 38.207
	Comet 1850, I. . .	8.5	23.2		30 23.16	1 37.815		
	(° 20)	19.1	34.0	48.5	30 33.86	2 47.258	0 10.70	39.610
	Comet 1850, I. . .	1.2	14.8	30.8	35 15.60	1 35.840		
	(° 20)	13.2		42.0	16 35 27.60	2 47.255	— 0 12.00	— 41.582

RESULTS.

Corr. Chron. — 12.62 s.

	α	δ
	h. m. s.	° ′ ″
(° 17)	14 18 34.77	+47 27 17.96

Comet — (° 17)		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	18 0 36.40	+ 1 9.14	+ 1 13.30
	Δρ	.00	— .02
	p +	.78	— 0.86

Corr. Chron. — 5.06 s.

	α	δ
	h. m. s.	° ′ ″
(° 19)	14 10 22.30	+41 6 13.84

Comet — (° 19)		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	17 12 21.70	— 0 36.51	+ 2 39.51
	Δρ	.00	+ .04
	p +	.81	— 1.83

(Continued.)

COMET 1850, I.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
July 7	Comet 1850, I.	26.1	39.8	56.0	16 37 40.63	1 34.450			Corr. Chron. m. s. + 0 4.30
	(° 20)	39.0		8.5	37 53.75	2 47.230	— 0 13.12	— 42.947	
	Comet 1850, I.	41.1	54.3	8.7	40 54.70	1 33.510			α h. m. s. δ ° ′ ″
	(° 20)	54.0	8.0	23.0	41 8.33	2 47.305	0 13.63	43.962	(° 20) 14 1 9.13 +34 7 15.47
	Comet 1850, I.	39.0	52.7	7.2	43 52.96	1 32.200			Comet—(° 20) Δ α h. m. s. Δ δ ′ ″
	(° 20)	51.0	6.0	21.1	44 6.37	2 47.380	0 13.41	45.347	Sid. T. 16 39 7.14 — 0 12.60 —11 5.41
	Comet 1850, I.	22.8	38.0	51.5	46 37.43	1 30.875			Δρ .00 + .19
	(° 20)	36.5	51.0	5.9	46 51.13	2 47.440	0 13.70	46.732	p + .69 + 3.05
	Comet 1850, I.	9.7		38.5	49 24.10	1 29.547			
	(° 20)	23.0		52.5	49 37.75	2 47.343	— 0 13.65	— 47.963	
July 10	4529, Rumker	56.1	10.0	24.0	17 52 10.03	2 19.798	+ 2 24.27	+ 4.564	
	Comet 1850, I.	20.8	34.0	48.1	54 34.30	2 24.362			
	4529, Rumker	2.2	16.0	29.0	57 15.73	2 20.058	2 22.13	2.121	Corr. Chron. m. s. + 0 4.77
	Comet 1850, I.	24.6	38.0	51.0	59 37.86	2 22.179			
	4529, Rumker	47.9	2.0	16.0	18 1 1.97	2 20.268	2 22.46	+ 0.558	α h. m. s. δ ° ′ ″
	Comet 1850, I.	11.0	24.3	38.0	3 24.43	2 20.826			4529, Rumker, 13 50 34.76 +25 44 12.10
	4529, Rumker	19.5	33.0	47.1	4 33.20	2 20.042	2 21.77	— 0.648	Comet—4529, Rumker, Δ α h. m. s. Δ δ ′ ″
	Comet 1850, I.	41.9	55.0	8.0	6 54.97	2 19.394			Sid. T. 18 5 37.54 + 2 22.24 — 0 6.09
	4529, Rumker	41.5	55.0	9.0	9 55.17	2 20.000	2 21.56	3.490	Δρ .00 .00
	Comet 1850, I.	3.1	16.3	30.8	12 16.73	2 16.510			p + .90 + 8.04
	4529, Rumker	53.2	7.0	21.0	14 7.07	2 20.290	+ 2 21.26	— 5.481	
	Comet 1850, I.	15.0	28.0	42.0	16 28.33	2 14.809			
July 11	Comet 1850, I.	55.1	8.0	21.0	18 14 8.03	3 24.869			
	4551, Rumker	26.1	39.2	52.9	17 39.40	1 38.920	— 3 31.37	+ 46.029	Corr. Chron. m. s. + 0 7.00
	Comet 1850, I.	58.2	11.9	25.0	19 11.70	3 22.750			
	4551, Rumker	30.2	43.7	56.7	22 43.53	1 38.870	3 31.83	43.960	α h. m. s. δ ° ′ ″
	Comet 1850, I.	16.8	29.7	43.5	25 30.60	3 19.760			4551, Rumker, 13 54 3.56 +22 42 29.22
	4551, Rumker	48.5	2.0	15.1	29 1.87	1 38.701	3 31.87	41.139	Comet—4551, Rumker, Δ α h. m. s. Δ δ ′ ″
	Comet 1850, I.	42.5	56.1	9.1	30 55.90	2 47.673			Sid. T. 18 28 46.60 — 3 32.77 +10 8.22
	4551, Rumker	16.0	29.1	42.5	34 29.20	1 39.130	3 33.30	38.710	Δρ + .01 — .22
	Comet 1850, I.	54.1	7.0	21.5	39 7.53	2 44.146			p + .95 + 8.60
	4551, Rumker	28.1	41.8	54.1	42 41.33	1 39.549	3 33.80	34.764	
	Comet 1850, I.	51.1	4.3	17.9	43 4.43	2 42.275			
	4551, Rumker	25.6	39.1	52.0	46 38.90	1 39.612	— 3 34.47	+ 32.830	
July 14	Weisse XIII, 737	33.8		59.5	17 13 46.65	2 55.222	+ 1 9.55	+ 29.519	
	Comet 1850, I.	43.7	56.2	8.7	14 56.20	1 55.870			Corr. Chron. m. s. + 0 12.16
	Weisse XIII, 737	36.8	49.3	1.9	16 49.33	2 55.240	1 9.50	27.662	
	Comet 1850, I.	46.3	58.7	11.5	17 58.83	1 57.745			α h. m. s. δ ° ′ ″
	Weisse XIII, 737		45.8	58.7	20 45.82	2 55.177	1 9.25	25.419	Weisse XIII, 737, 13 42 47.76 +14 14 6.90
	Comet 1850, I.	42.2	55.0	8.0	21 55.07	1 59.925			Comet—Weisse XIII, 737, Δ α h m. s. Δ δ ′ ″
	Weisse XIII, 737	54.0	7.0	19.0	37 6.67	2 54.857	1 7.83	18.191	Sid. T. 17 38 18.60 + 1 7.81 + 4 40.15
	Comet 1850, I.	2.0	14.7	26.8	38 14.50	2 36.666			Δρ .00 .14
	Weisse XIII, 737	0.3	13.1		40 13.35	3 25.402	+ 1 7.55	+ 16.680	p + .84 + 9.35
	Comet 1850, I.	8.1	20.4	34.2	41 20.90	2 38.634			

(Continued.)

COMET 1850, I.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
July 14	Weisse XIII, 737 .	30.5	43.5	56.0	17 42 43.33	3 25.051	+ 1 7.04	+ 15.501	
	Comet 1850, I. . .	38.1	50.0	3.0	43 50.37	2 39.462			
	Weisse XIII, 737 .	4.2	17.1	29.4	45 16.90	3 24.955	1 7.20	14.338	
	Comet 1850, I. . .	11.7	24.1	36.5	46 24.10	2 40.529			
	Weisse XIII, 737 .	39.1	51.5	4.2	47 51.60	3 25.043	1 6.53	12.980	
	Comet 1850, I. . .	45.2	58.0	11.2	48 58.13	2 41.975			
	Weisse XIII, 737 .	58.1	10.9	23.1	51 10.70	3 25.210	1 6.33	11.821	
	Comet 1850, I. . .	4.5	17.1	29.5	52 17.03	2 43.301			
	Weisse XIII, 737 .	49.1	2.0	14.7	54 1.93	2 55.052	+ 1 7.30	+ 10.173	
	Comet 1850, I. . .	56.2	9.0	22.5	55 9.23	2 44.879			
July 20	4547, B. A. C. . .	28.2	40.0	52.8	16 49 40.33	1 49.648	+ 2 38.80	— 53.678	
	Comet 1850, I. . .	7.2	19.3	30.9	52 19.13	3 43.246			
	4547, B. A. C. . .	26.2	38.3	50.3	53 38.27	1 49.528	2 38.26	55.638	Corr. Chron. m. s. + 0 32.04
	Comet 1850, I. . .	4.1	16.5	29.0	56 16.53	3 45.086			
	4547, B. A. C. . .	18.0	30.6	42.9	57 30.50	1 49.353	2 38.10	57.289	α h. m. s. δ ° ′ ″
	Comet 1850, I. . .	56.5	8.2	21.1	17 0 8.60	3 46.562			4547, B. A. C., 13 30 2.83 — 2 28 8.03
	4547, B. A. C. . .	43.1		7.2	1 55.15	1 49.230	2 37.88	59.089	Comet—4547, B. A. C., Δ α h. m. s. Δ δ ′ ″
	Comet 1850, I. . .	20.9	33.1	45.1	4 33.03	3 48.239			Sid. T. 17 7 3.55 + 2 37.72 —15 20.42
	4547, B. A. C. . .	41.0	53.2	5.7	5 53.30	1 49.192	2 37.86	60.716	Δ ρ — .04 — .73
	Comet 1850, I. . .	19.1	31.2	43.2	8 31.16	3 49.828			ρ + .74 + 11.52
	4547, B. A. C. . .	37.3	49.1	1.7	9 49.37	1 49.128	2 37.16	62.415	
	Comet 1850, I. . .	14.1	26.4	39.1	12 26.53	3 51.463			
	4547, B. A. C. . .	40.0	52.3	4.2	13 52.23	1 49.318	2 36.67	63.803	
	Comet 1850, I. . .	17.0	28.4	41.3	16 28.90	3 53.041			
	4547, B. A. C. . .	39.1		3.2	18 51.15	1 48.775	+ 2 37.02	— 66.464	
	Comet 1850, I. . .	16.0	28.2	40.3	21 28.17	3 55.159			

PARTHENOPE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
July 11	Parthenope . . .	35.1		0.0	16 53 47.55	1 24.820		
	Weisse XIV, 1016 .	17.0		42.0	54 29.50	1 42.880	— 0 41.95	+ 18.060
	Parthenope . . .	56.1	8.0	21.0	17 29 8.37	1 25.818		
	Weisse XIV, 1016 .	37.5		2.5	29 50.00	1 42.560	0 41.63	16.742
	Parthenope . . .	5.0	17.0	28.5	41 16.83	1 24.690		
	Weisse XIV, 1016 .	45.0		11.0	41 58.00	1 42.330	— 0 41.17	+ 17.640
July 14	Weisse XIV, 1016 .		34.2		16 6 34.20	1 37.468	+ 0 23.80	— 36.677
	Parthenope . . .	46.0	58.0	10.0	6 58.00	2 43.978		
	Weisse XIV, 1016 .	10.3	22.5	34.2	12 22.33	1 37.671	0 23.74	36.567
	Parthenope . . .	33.0	45.1	57.1	12 45.07	2 44.071		
	Weisse XIV, 1016 .	3.2	16.0	27.0	16 15.40	1 37.738	0 24.20	36.616
	Parthenope . . .	27.2		52.0	16 39.60	2 44.187		
	Weisse XIV, 1016 .	41.1	53.7	6.5	18 53.77	1 37.890	0 23.88	36.497
	Parthenope . . .	5.0		30.3	19 17.65	2 44.220		
	Weisse XIV, 1016 .	54.1	6.2		21 6.20	1 37.741	0 24.27	36.737
	Parthenope . . .	18.1	30.3	43.0	21 30.47	2 44.311		
	Weisse XIV, 1016 .	50.3	3.2		22 3.20	1 37.689	0 23.57	36.648
	Parthenope . . .	14.2	27.1	39.0	22 26.77	2 44.170		
	Weisse XIV, 1016 .	5.4	18.0		25 18.00	1 37.825	0 23.96	36.742
	Parthenope . . .	29.1	42.5	54.3	25 41.96	2 44.506		
	Weisse XIV, 1016 .	59.2	11.7		33 11.70	1 37.859	+ 0 23.20	— 36.706
	Parthenope . . .	22.5	34.7	47.5	33 34.90	2 44.398		
July 19	Weisse XIV, 1072 .	21.0	34.2	46.0	17 1 33.73	2 33.610	+ 0 11.34	+ 18.346
	Parthenope . . .	33.0	45.0	57.2	1 45.70	1 45.431		
	Weisse XIV, 1072 .	39.2	51.9	4.1	3 51.73	2 33.333	0 11.40	18.269
	Parthenope . . .	50.5	3.7	15.2	4 3.13	1 45.231		
	Weisse XIV, 1072 .	1.4	14.2	27.0	6 14.20	2 33.262	0 11.57	18.092
	Parthenope . . .	13.5	25.7	38.1	6 25.77	1 45.337		
	Weisse XIV, 1072 .	7.9	21.0	33.0	8 20.63	2 33.447	0 11.44	18.313
	Parthenope . . .	20.0	32.0	44.2	8 32.07	1 45.301		
	Weisse XIV, 1072 .	27.5	40.1	53.0	12 40.20	2 33.250	0 11.13	18.074
	Parthenope . . .	39.0	51.0	4.0	12 51.33	1 45.343		
	Weisse XIV, 1072 .	51.0	4.2	16.2	15 3.80	2 33.242	+ 0 11.53	+ 17.789
	Parthenope . . .	3.0	15.0	28.0	15 15.33	1 45.620		
Aug. 11	Weisse XV, 265 .	6.0		31.5	18 19 18.85	1 51.560	+ 0 10.65	— 55.553
	Parthenope . . .	17.0		42.0	19 29.50	3 47.033		
	Weisse XV, 281 .		53.5	6.0	19 53.50	1 42.905	— 0 24.00	64.208
	Weisse XV, 265 .	28.1		53.2	23 40.65	1 51.467	+ 0 11.60	55.662
	Parthenope . . .	39.5		5.0	23 52.25	3 47.049		
	Weisse XV, 281 .		15.7	28.0	24 15.70	1 42.645	— 0 23.45	64.484
	Weisse XV, 265 .	46.9		11.9	34 59.40	1 50.879	+ 0 12.30	55.801
	Parthenope . . .	59.0		24.4	35 11.70	3 46.600		
	Weisse XV, 281 .		34.3	47.0	35 34.30	1 42.090	— 0 22.60	64.590
	Weisse XV, 265 .	54.3		19.1	38 6.70	1 50.723	+ 0 13.00	55.747
	Parthenope . . .	7.1		32.3	38 19.70	3 46.390		
	Weisse XV, 281 .		41.9	55.3	18 38 41.90	1 42.045	— 0 22.20	— 64.425

RESULTS.

Corr. Chron. + 7.00 s.

	α h. m. s.	δ ° ′ ″
Weisse XIV, 1016,	14 54 11.61	—11 8 46.79

Parthenope—Weisse XIV, 1016,	Δα m. s.	Δδ ′ ″
Sid. T. 17 21 31.25	— 0 41.58	+ 4 28.66
Δρ	— .01	.24
p	+ .14	+ 3.63

Corr. Chron + 12.16 s.

	α h. m. s.	δ ° ′ ″
Weisse XIV, 1016,	14 54 11.57	—11 8 46.66

Parthenope—Weisse XIV, 1016,	Δα m. s.	Δδ ′ ″
Sid. T. 16 20 3.96	+ 0 23.83	— 9 23.28
Δρ	.00	— .41
p	+ .10	+ 3.70

Corr. Chron. + 28.54 s.

	α h. m. s.	δ ° ′ ″
Weisse XIV, 1072,	14 56 47.14	—11 48 22.15

Parthenope—Weisse XIV, 1072,	Δα m. s.	Δδ ′ ″
Sid. T. 17 8 37.32	+ 0 11.40	+ 4 38.91
Δρ	.01	.24
p	+ .12	+ 3.54

(Continued.)

PARTHENOPE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850, Aug. 11	Weisse XV, 265	49.2		14.0	18 43 1.60	1 50.640	+ 0 13.05	— 55.824
	Parthenope	2.1		27.2	43 14.65	3 46.384		
	Weisse XV, 281		37.0	50.2	43 37.00	1 41.725	— 0 22.35	64.739
	Weisse XV, 265	52.9		18.7	47 5.80	1 50.623	+ 0 13.10	55.827
	Parthenope	6.1		31.7	47 18.90	3 46.370		
	Weisse XV, 281		40.9	54.0	47 40.90	1 41.760	— 0 22.00	64.690
	Weisse XV, 265	5.2		30.5	49 17.85	1 50.477	+ 0 13.40	55.863
	Parthenope	18.5		44.0	49 31.25	3 46.260		
	Weisse XV, 281		53.6	5.7	49 53.60	1 41.552	— 0 22.35	64.788
	Weisse XV, 265	56.3		21.0	53 8.65	1 50.190	+ 0 12.90	56.023
	Parthenope	9.1		34.0	53 21.55	3 46.133		
	Weisse XV, 281		44.0	56.0	53 44.00	1 41.461	— 0 22.45	64.752
	Weisse XV, 265	3.2		28.6	56 15.90	1 50.000	+ 0 13.10	56.052
	Parthenope	16.5		41.5	56 29.00	3 45.972		
	Weisse XV, 281		51.0	3.0	56 51.00	1 41.077	— 0 22.60	— 64.975
Aug. 12	Weisse XV, 249	58.1	10.0	22.7	17 21 10.27	3 33.290	+ 2 6.40	+ 43.173
	Parthenope		16.5	29.0	23 16.67	1 50.197		
	Weisse XV, 249	44.0	57.0		31 56.85	3 33.695	2 6.45	42.998
	Parthenope	50.9	3.0	16.0	34 3.30	1 50.777		
	Weisse XV, 249	39.1	51.0	3.8	35 51.30	3 33.655	2 7.10	42.965
	Parthenope	46.0	58.0	11.2	37 58.40	1 50.770		
	Weisse XV, 249	36.3	49.1	2.1	39 49.16	3 33.630	2 7.19	42.951
	Parthenope	43.7		9.0	41 56.35	1 50.759		
	Weisse XV, 249	39.5		5.0	43 52.25	3 33.558	2 7.60	43.048
	Parthenope	47.2		12.5	45 59.85	1 50.590		
	Weisse XV, 249	53.8	7.1	19.1	47 6.67	3 33.400	2 7.16	42.780
	Parthenope	1.3	14.0	26.2	50 13.83	1 30.700		
	Weisse XV, 249	30.0	42.3	55.0	52 42.43	3 33.350	+ 2 8.07	+ 42.810
	Parthenope	37.9	50.6	3.0	54 50.50	1 50.620		
Aug. 14	Parthenope	38.1	51.0	3.0	18 5 50.70	3 29.722		
	Weisse XV, 400	40.0	53.0	5.0	8 52.67	2 40.491	— 3 1.97	— 19.144
	Parthenope	58.0	10.5	23.0	10 10.50	3 29.992		
	Weisse XV, 400	59.5	12.0	25.0	13 12.17	2 40.170	3 1.67	19.734
	Parthenope	39.7	52.1	6.0	15 52.60	3 29.871		
	Weisse XV, 400	41.1	54.0	7.0	18 54.03	2 40.201	3 1.43	19.582
	Parthenope	44.0	56.9		19 56.90	3 29.755		
	Weisse XV, 400	45.2	57.1	10.5	22 57.60	2 40.082	3 0.70	19.585
	Parthenope	39.7		55.0	31 42.35	3 29.232		
	Weisse XV, 400	30.5	43.0	56.0	34 43.16	2 39.250	— 3 0.81	— 19.894
Aug. 15	Parthenope		8.0	21.0	17 29 8.22	3 31.732		
	Weisse XV, 400	52.7	5.1	18.0	31 5.07	1 47.150	— 1 56.85	— 44.662
	Parthenope		54.0	6.0	52 53.92	3 32.071		
	Weisse XV, 400	37.1	48.6	2.1	54 49.27	1 46.891	1 55.35	45.260
	Parthenope	59.5	12.2	25.1	59 12.27	3 32.121		
	Weisse XV, 400	54.2	7.1	20.0	18 1 7.10	1 47.129	1 54.83	45.072
	Parthenope	57.2	9.3	22.0	3 9.50	3 32.020		
	Weisse XV, 400	52.0	5.0	18.0	18 5 5.00	1 46.942	— 1 55.50	— 45.158

RESULTS.

Aug. 11

Corr. Chron. + 1 m. 29.61 s.

	α h. m. s.	δ ° ′ ″
Weisse XV, 265,	15 15 11.70	—13 48 33.71
Weisse XV, 281,	15 15 47.02	13 46 17.68

Parthenope—Weisse XV, 265, Δα, Δδ

	h. m. s.	m. s.	′ ″
Sid. T.	18 42 15.00	+ 0 12.57	—14 17.89
	Δρ	— .08	— 1.45
	p	+ .18	+ 2.92

Parthenope—Weisse XV, 281.

	h. m. s.		
Sid. T.	18 42 15.00	— 0 22.60	—16 33.31
	Δρ	+ .09	— 1.67
	p	+ .18	+ 2.92

Aug. 12

Corr. Chron. + 1 m. 31.56 s.

	α h. m. s.	δ ° ′ ″
Weisse XV, 249,	15 14 18.01	—14 20 12.89

Parthenope—Weisse XV, 249, Δα, Δδ

	h. m. s.	m. s.	′ ″
Sid. T.	17 42 42.83	+2 7.14	+11 0.27
	Δρ	.02	.70
	p	+ .13	+ 3.14

Aug. 14

Corr. Chron. + 1 m. 39.00 s.

	α h. m. s.	δ ° ′ ″
Weisse XV, 400,	15 21 36.47	—14 17 34.59

Parthenope—Weisse XV, 400, Δα, Δδ

	h. m. s.	m. s.	′ ″
Sid. T.	18 18 21.61	— 3 1.32	— 5 1.05
	Δρ	+ .02	— .34
	p	+ .15	+ 3.05

(Continued.)

PARTHENOPE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Aug. 15	Parthenope - - -	45.7	58.0	10.8	18 6 58.17	3 31.730		
	Weisse XV, 400 - -	40.0	53.1	6.0	8 53.03	1 46.671	— 1 54.86	— 45.139
	Parthenope - - -	57.2	9.4	22.5	10 9.70	3 31.940		
	Weisse XV, 400 - -	51.9	4.7	17.5	12 4.70	1 46.782	1 55.00	45.238
	Parthenope - - -	47.4	0.1	12.9	14 0.13	3 31.900		
	Weisse XV, 400 - -	42.1	55.0	8.0	15 55.03	1 46.618	1 54.90	45.362
	Parthenope - - -	31.7	44.0	57.2	17 44.30	3 31.980		
	Weisse XV, 400 - -	26.1	39.3	52.0	19 39.13	1 46.481	— 1 54.83	— 45.579
Aug. 16	Parthenope - - -	49.0	1.0	13.2	17 52 1.06	3 40.881		
	Weisse XV, 400 - -		49.0	1.7	52 49.31	1 29.690	— 0 48.25	— 71.271
	Parthenope - - -	32.0	44.2	57.1	55 44.43	3 40.840		
	Weisse XV, 400 - -		32.0	45.1	56 32.33	1 29.695	0 47.90	71.225
	Parthenope - - -	55.0	8.0	20.5	58 7.83	3 40.871		
	Weisse XV, 400 - -	42.9	55.9	8.0	58 55.60	1 29.575	0 47.77	71.376
	Parthenope - - -	39.2	51.6	4.0	18 0 51.60	3 40.919		
	Weisse XV, 400 - -	27.1	39.0	52.0	1 39.37	1 29.622	0 47.77	71.377
	Parthenope - - -	41.2	52.7	6.0	2 53.30	3 40.905		
	Weisse XV, 400 - -	29.1	40.9	54.0	3 41.33	1 29.428	0 48.03	71.557
	Parthenope - - -	8.1		33.1	5 20.60	3 40.769		
	Weisse XV, 400 - -	56.5	9.3	21.5	6 9.10	1 29.287	0 48.50	71.562
	Parthenope - - -	10.2	24.0	36.0	7 23.40	3 40.690		
	Weisse XV, 400 - -	58.9	11.5	24.0	3 11.47	1 29.290	0 48.07	71.480
	Parthenope - - -	31.7	43.2	57.0	9 43.96	3 40.812		
	Weisse XV, 400 - -	19.2	32.0	44.7	10 31.96	1 29.420	0 48.00	71.472
	Parthenope - - -	49.7	2.0	15.0	12 2.23	3 40.732		
	Weisse XV, 400 - -	37.2	50.1	2.0	12 49.76	1 29.151	0 47.54	71.661
	Parthenope - - -	56.0	8.5	21.0	15 8.50	3 40.699		
	Weisse XV, 400 - -	43.5	56.0	9.0	15 56.17	1 29.092	— 0 47.67	— 71.687
Aug. 23	Parthenope - - -	24.7		49.2	18 36 36.95	2 33.688		
	5184, B. A. C. - -	35.0	47.9	0.0	41 47.63	3 36.750	— 5 10.68	+ 32.974
	Parthenope - - -	50.7	3.0	16.0	45 3.23	2 33.559		
	5184, B. A. C. - -	2.1	14.4	27.5	50 14.67	3 36.340	5 11.44	32.693
	Parthenope - - -	11.2	23.9	36.2	53 23.76	2 33.293		
	5184, B. A. C. - -	20.0	33.3	45.2	58 32.83	3 35.842	— 5 9.07	+ 32.461
Aug. 25	Parthenope - - -	27.2	39.7	52.5	17 53 39.80	3 28.775		
	5184, B. A. C. - -	8.1	21.5	33.2	56 20.93	2 39.229	— 2 41.13	— 19.458
	Parthenope - - -	9.2	21.9	34.0	59 21.70	3 28.431		
	5184, B. A. C. - -		2.1	15.2	2 2.40	2 39.241	2 40.70	19.102
	Parthenope - - -	19.1	31.0	43.2	18 3 31.10	3 28.850		
	5184, B. A. C. - -	59.3	12.6	25.1	6 12.33	2 39.702	2 41.23	19.060
	Parthenope - - -	44.0		9.2	10 56.60	3 27.962		
	5184, B. A. C. - -		37.2	49.2	13 37.20	2 39.209	2 40.60	18.665
	Parthenope - - -	45.7	58.0	10.9	16 58.20	3 28.550		
	5184, B. A. C. - -	25.2	37.9	50.1	19 37.73	2 39.130	— 2 39.53	— 19.332

RESULTS.

Corr. Chron. + 1 m. 42.43 s.

	α h. m. s.	δ ° ′ ″
Weisse XV, 400,	15 21 36.47	—14 17 34.55

Parthenope—Weisse XV, 400,

	Δ α h. m. s.	Δ δ m. s. ′ ″
Sid. T.	18 3 21.96	— 1 55.26 —11 34.46
	Δρ +	.03 — .81
	p +	.14 + 3.08

Corr. Chron. + 1 m. 44.96 s.

	α h. m. s.	δ ° ′ ″
Weisse XV, 400,	15 21 36.46	—14 17 34.52

Parthenope—Weisse XV, 400,

	Δ α h. m. s.	Δ δ m. s. ′ ″
Sid. T.	18 5 40.65	— 0 47.95 —18 18.42
	Δρ +	.05 — 1.32
	p +	.14 + 3.07

Corr. Chron. + 2 m. 6.40 s.

	α h. m. s.	δ ° ′ ″
5184, B. A. C.	15 34 21.73	—15 31 41.06

Parthenope—5184, B. A. C.

	Δ α h. m. s.	Δ δ m. s. ′ ″
Sid. T.	18 47 7.71	— 5 10.40 + 8 22.72
	Δρ —	.04 .85
	p +	.16 + 2.90

PARTHENOPE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Aug. 25	Parthenope . . .	18.7	31.5	44.0	18 22 31.40	3 26.659		
	5184, B. A. C. . .	58.2	10.7	23.8	25 10.90	2 37.160	— 2 39.50	— 19.411
	Parthenope . . .	17.1	29.0	42.5	26 29.53	3 26.700		
	5184, B. A. C. . .	56.3	9.1	22.0	29 9.13	2 37.091	3 39.60	19.521
	Parthenope . . .	11.9	25.0	37.0	30 24.63	3 26.649		
	5184, B. A. C. . .	51.2	4.1	16.8	33 4.03	2 36.959	2 39.40	19.602
	Parthenope . . .	27.1	39.7	52.0	34 39.60	3 26.578		
	5184, B. A. C. . .	6.0	19.0	31.2	37 18.73	2 36.720	— 2 39.13	— 19.770
Aug. 26	Parthenope . . .	57.9	10.0	23.0	18 27 10.30	3 26.991		
	5184, B. A. C. . .	19.5	32.3	45.1	28 32.30	1 41.209	— 1 22.00	— 45.862
	Parthenope . . .	26.2	38.5	50.9	29 38.53	3 26.897		
	5184, B. A. C. . .	47.5	0.6	13.2	31 0.43	1 41.160	1 21.90	45.817
	Parthenope . . .	47.1	59.7	12.5	31 59.77	3 26.880		
	5184, B. A. C. . .	9.0	21.6	34.3	33 21.63	1 41.022	1 21.86	45.938
	Parthenope . . .	20.7	33.1	46.0	34 33.27	3 26.970		
	5184, B. A. C. . .	42.2	54.6	7.0	35 54.60	1 40.990	1 21.33	46.060
	Parthenope . . .	12.7	25.1	37.9	37 25.23	3 26.797		
	5184, B. A. C. . .	34.1	46.2	59.2	38 46.50	1 40.900	— 1 21.27	— 45.977
Aug. 27	(° 23)	17.6	30.3	43.2	18 3 30.37	2 19.020	+ 0 40.96	— 46.602
	Parthenope . . .	59.0	11.0	24.0	4 11.33	3 35.710		
	(° 23)	59.2	11.7	23.9	7 11.60	2 18.829	0 41.67	46.588
	Parthenope . . .	40.2	53.1	6.5	7 53.27	3 35.505		
	(° 23)	14.3	27.0	40.0	11 27.10	2 18.661	0 41.40	46.589
	Parthenope . . .	56.0	8.5	21.0	12 8.50	3 35.338		
	(° 23)	45.7	58.1	11.0	14 58.27	2 18.612	0 41.80	46.641
	Parthenope . . .	27.2	40.0	53.0	15 40.07	3 35.341		
	(° 23)	55.2	8.1	21.0	19 8.10	2 18.569	0 41.80	46.775
	Parthenope . . .	37.2	50.0	2.5	19 49.90	3 35.432		
	(° 23)	17.5	29.7	42.7	23 29.97	2 18.450	0 42.16	46.734
	Parthenope . . .	59.4	12.0	25.0	24 12.13	3 35.272		
	(° 23)	0.5	12.5	25.2	27 12.73	2 18.280	0 42.80	46.820
	Parthenope . . .	43.2	55.2	8.2	27 55.53	3 35.188		
	(° 23)	41.2	53.5	6.2	30 53.63	2 18.295	+ 0 42.37	— 46.828
	Parthenope . . .	23.0	36.0	49.0	31 36.00	3 35.211		
Aug. 28	(° 23)	1.8	14.7	27.1	17 56 14.53	1 34.751	+ 2 0.35	— 72.630
	Parthenope . . .		15.0	27.5	58 14.88	3 47.301		
	(° 23)	48.5	1.2	13.5	18 0 1.07	1 34.831	2 0.66	72.650
	Parthenope . . .	48.5	1.7	15.0	2 1.73	3 47.401		
	(° 23)	38.1		4.7	4 51.40	1 34.761	2 0.77	72.679
	Parthenope . . .	39.7	52.5	4.3	6 52.17	3 47.360		
	(° 23)	49.2	2.1	15.0	10 2.10	1 34.575	+ 2 1.00	72.725
	Parthenope . . .	50.0	3.3	16.0	12 3.10	3 47.220		
	(° 23)	52.1	4.3	17.9	13 4.77	1 34.801	+ 2 0.96	— 72.673
	Parthenope . . .	52.9	5.7	18.6	15 5.73	3 47.396		

RESULTS.

Corr. Chron. m. s. + 2 12.22

	α h. m. s.	δ ° ′ ″
5184, B. A. C.	15 34 21.69	—15 31 40.75

Parthenope—5184, B. A. C.		Δ α m. s.	Δ δ ′ ″
	h. m. s.		
Sid. T.	17 17 35.84	— 2 40.09	— 4 57.00
	Δρ	+ .06	— .27
	p	+ .09	+ 3.07

Corr. Chron. m. s. + 2 15.00

	α h. m. s.	δ ° ′ ″
5184, B. A. C.	15 34 21.66	—15 31 40.59

Parthenope—5184, B. A. C.		Δ α m. s.	Δ δ ′ ″
	h. m. s.		
Sid. T.	18 34 24.42	— 1 21.67	—11 45.94
	Δρ	+ .05	— 1.02
	p	+ .15	+ 2.91

Corr. Chron. m. s. + 2 17.76

	α h. m. s.	δ ° ′ ″
(° 23)	15 33 35.72	—15 38 15.40

Parthenope—(° 23)		Δ α m. s.	Δ δ ′ ″
	h. m. s.		
Sid. T.	17 20 13.60	+ 0 41.87	—11 55.57
	Δρ	— .03	— .96
	p	+ .14	+ 2.94

(Continued.)

PARTHENOPE.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
850.		s.	s.	s.	h. m s.	w. revs.	m. s.	revs.
g. 28	(° 23) - - - -	59.7	12.1	25.1	18 17 12.20	1 34.311	+ 2 1.53	— 72.859
	Parthenope - - -	1.0	14.0	26.2	19 13.73	3 47.090		
	(° 23) - - - -	39.2	51.3	4.1	21 51.53	1 34.200	2 1.64	73.240
	Parthenope - - -	39.7	52.8	7.0	23 53.17	3 47.360		
	(° 23) - - - -	8.7	20.3	33.2	26 20.73	1 34.192	2 1.70	73.188
	Parthenope - - -	9.2	22.1	36.0	28 22.43	3 47.300		
	(° 23) - - - -	14.1	26.2	39.6	31 26.63	1 34.090	+ 2 2.04	— 73.132
	Parthenope - - -	16.2	28.5	41.3	33 28.67	3 47.142		
g. 29	(° 24) - - - -	1.3	14.1	27.5	17 58 14.30	1 44.209	+ 0 54.03	— 32.443
	Parthenope - - -	55.5	8.0	21.5	59 8.33	2 46.485		
	(° 24) - - - -	32.2	45.2	58.0	18 0 45.13	1 44.020	0 53.97	32.597
	Parthenope - - -	26.2	39.1	52.0	1 39.10	2 46.450		
	(° 24) - - - -	15.3	28.0	41.0	3 28.10	1 44.022	0 53.93	32.677
	Parthenope - - -	9.1	22.0	35.0	4 22.03	2 46.532		
	(° 24) - - - -	22.5	35.7	48.5	5 35.57	1 44.027	0 54.13	32.719
	Parthenope - - -	17.0	29.5	42.6	6 29.70	2 46.579		
	(° 24) - - - -	17.8	30.4	43.7	7 30.63	1 43.905	0 54.40	33.172
	Parthenope - - -	12.0	25.1	38.0	8 25.03	2 46.910		
	(° 24) - - - -	27.0	40.3	53.1	9 40.13	1 43.882	0 54.17	32.675
	Parthenope - - -	21.9	34.0	47.0	10 34.30	2 46.390		
	(° 24) - - - -	49.7	2.7	15.4	12 2.60	1 43.896	0 54.46	32.630
	Parthenope - - -	43.9	57.1	10.2	12 57.06	2 46.359		
	(° 24) - - - -	27.9	41.0	53.5	14 40.80	1 43.865	0 54.27	32.640
	Parthenope - - -	22.0	35.2	48.0	15 35.07	2 46.338		
	(° 24) - - - -	47.0	58.9	12.0	16 59.30	1 43.686	0 54.45	33.331
	Parthenope - - -	40.5		7.0	17 53.75	2 46.850		
	(° 24) - - - -	38.5	51.5	4.2	20 51.40	1 43.632	0 54.87	32.885
	Parthenope - - -	33.7	46.1	59.0	21 46.27	2 46.350		
	(° 24) - - - -	48.7	1.0	14.5	23 1.40	1 43.570	0 54.70	32.912
	Parthenope - - -	43.2	56.0	9.1	23 56.10	2 46.315		
	(° 24) - - - -	14.2	27.1	39.2	25 26.83	1 43.520	0 55.47	32.882
	Parthenope - - -	9.7	22.2	35.0	26 22.30	2 46.235		
	(° 24) - - - -	27.6	40.6	52.9	27 40.37	1 43.412	+ 0 55.46	— 33.020
	Parthenope - - -	23.0	35.5	49.0	28 35.83	2 46.265		
ug. 30	(° 24) - - - -	21.7	34.0		18 38 34.20	1 33.859	+ 2 18.20	— 59.311
	Parthenope - - -	39.5	52.7	5.0	40 52.40	3 33.090		
	(° 24) - - - -	5.6	18.2		43 18.30	1 33.601	2 17.90	59.486
	Parthenope - - -	23.4	36.2	49.0	45 36.20	3 33.007		
	(° 24) - - - -	9.5		35.2	47 22.35	1 33.540	+ 2 17.65	— 59.189
	Parthenope - - -	27.1	40.0		49 40.00	3 32.649		
ug. 31	28697, Lalande - -	57.2		22.5	18 3 9.85	3 34.269	+ 2 18.15	+ 44.371
	Parthenope - - -	15.0	28.0	41.0	5 28.00	1 49.998		
	28697, Lalande - -	37.3	50.2	3.7	18 7 50.40	3 34.141	+ 2 17.60	+ 44.302
	Parthenope - - -		8.1	21.0	10 8.00	1 49.919		

RESULTS.

Corr. Chron. m. s. + 2 19.44

	α h. m. s.	δ ° ′ ″
(° 23)	15 33 35.70	—15 38 15.36

Parthenope — (° 23)		Δ α m. s.	Δ δ ′ ″
Sid. T.	18 17 47.84	+ 2 1.18	—18 39.86
	Δρ —	.05	— 1.47
	p +	.14	+ 2.92

Corr. Chron. m. s. + 2 24.35

	α h. m. s.	δ ° ′ ″
(° 24)	15 36 2.50	—15 55 17.94

Parthenope — (° 24)		Δ α m. s.	Δ δ ′ ″
Sid. T.	18 16 4.72	+ 0 54.48	— 8 24.34
	Δρ —	.02	— .65
	p +	.13	+ 2.91

Corr. Chron. m. s. +2 27.00

	α h. m. s.	δ ° ′ ″
(° 24)	15 36 2.50	—15 55 17.91

Parthenope — (° 24)		Δ α m. s.	Δ δ ′ ″
Sid. T.	18 47 49.88	+ 2 17.92	—15 11.85
	Δρ —	.08	— 1.50
	p +	.15	+ 2.84

(Continued.)

PARTHENOPE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Aug. 31	28697, Lalande . .	4.4	18.1	30.7	18 13 17.73	3 34.081	+ 2 18.44	+ 44.441
	Parthenope . . .	23.0	36.0	49.5	15 36.17	1 49.720		
	28697, Lalande . .	23.0	35.8	48.5	17 35.77	3 34.020	2 19.63	44.039
	Parthenope . . .	43.0	55.2	8.0	19 55.40	1 50.061		
	28697, Lalande . .	31.5	44.2	57.1	25 44.27	3 33.915	2 19.30	44.173
	Parthenope . . .	51.0	3.7	16.0	28 3.57	1 49.822		
	28697, Lalande . .	56.4	9.2	22.3	30 9.86	3 33 612	2 20.20	44.155
	Parthenope . . .	17.0	29.5	42.0	32 29.50	1 49.537		
	28697, Lalande . .	4.1	16.3	29.7	39 16.70	3 33.305	2 20.73	43.836
	Parthenope . . .	25.1	37.2	50.0	41 37.43	1 49.549		
	28697, Lalande . .	7.1	19.5	32.0	48 19.53	3 32.871	+ 2 21.20	+ 43.573
	Parthenope . . .	27.5	41.0	53.7	50 40.73	1 49.378		
Sept. 2	Parthenope . . .	54.1		19.5	19 14 6.80	3 34.105		
	5257, B. A. C. . .	41.7	54.0	7.0	16 54.23	1 41.288	— 2 47.43	— 52.897
	Parthenope . . .	51.7		17.0	19 4.35	3 33.668		
	5257, B. A. C. . .	38.2	51.3	4.2	21 51.23	1 40.050	2 46.88	53.698
	Parthenope . . .	6.2	19.0	31.0	23 18.73	3 33.335		
	5257, B. A. C. . .	53.3	5.7	18.2	26 5.73	1 39.850	2 47.00	53.565
	Parthenope . . .	47.5	0.0	13.0	29 0.17	3 33.188		
	5257, B. A. C. . .	34.0	47.0	0.0	31 47.00	1 39.149	— 2 46.83	— 54.119
Sept. 3	Parthenope . . .	20.7	33.0	45.5	18 11 33.07	3 47.149		
	5257, B. A. C. . .	47.0	59.6	12.5	12 59.70	1 28.375	— 1 26.63	— 78.454
	Parthenope . . .	2.0	15.0	27.7	16 14.97	3 47.145		
	5257, B A. C. . .		41.2	53.8	17 41.12	1 28.201	1 26.15	79.024
	Parthenope . . .	8.1	21.0	33.2	22 20.77	3 46.981		
	5257, B. A. C. . .	32.5	46.0	59.2	23 46.33	1 28.185	1 25.56	78.876
	Parthenope . . .	0.7		26.0	28 13.35	3 47.080		
	5257, B. A. C. . .	25.9	38.3	51.6	29 38.60	1 28.062	1 25.25	79.098
	Parthenope . . .	15.7		41.2	33 28.45	3 47.120		
	5257, B. A. C. . .	40.8	53.6	6.1	34 53.50	1 28.108	1 25.05	79.092
	Parthenope . . .	57.2	9.7	23.2	38 10.03	3 46.927		
	5257, B. A. C. . .	22.7	35.1	47.7	39 35.17	1 27.681	1 25.14	79.326
	Parthenope . . .	3.1	16.0	28.2	42 15.77	3 46.791		
	5257, B. A. C. . .		39.7	53.1	43 40.07	1 27.550	1 24.30	79.321
	Parthenope . . .	12.0	24.9	38.0	47 24.97	3 46.575		
	5257, B. A. C. . .	36.7	49.2	2.2	48 49.37	1 27.134	1 24.40	79.521
	Parthenope . . .	1.5	14.6	27.0	52 14.20	3 46.568		
	5257, B. A. C. . .	25.4	38.0	50.9	53 38.10	1 27.229	1 23.90	79.419
	Parthenope . . .	54.9		20.3	57 7.60	3 46.265		
	5257, B. A. C. . .	18.2	31.3	44.0	58 31.17	1 26.850	1 23.57	79.495
	Parthenope . . .	2.5	15.1	28.0	19 2 15.20	3 45.987		
	5257, B. A. C. . .	26.1	38.2	51.0	3 38.43	1 26.332	1 23.23	79.735
	Parthenope . . .	41.2	54.0	7.1	7 54.10	3 45.732		
	5257, B. A. C. . .	3.9	16.2	29.1	19 9 16.40	1 26.130	— 1 22.30	— 79.682

RESULTS.

Aug. 31

Corr. Chron. + 2 m. 30.60 s.

	α h. m. s.	δ ° ′ ″
28697, Lalande,	15 37 21.51	—16 28 31.32

Parthenope — 28697, Lalande,

		Δ α m. s.	Δ δ ′ ″
Sid. T.	18 28 0.45	+ 2 19.41	+11 17.97
	Δρ	— .04	.97
	ρ	+ .16	+ 2.88

Sept. 2

Corr. Chron. + 2 m. 37.53 s.

	α h. m. s.	δ ° ′ ″
5257, B. A. C.	15 45 18.68	—16 17 2.78

Parthenope — 5257, B. A. C.

		Δ α m. s.	Δ δ ′ ″
Sid. T.	19 24 0.04	— 2 47.03	—13 43.31
	Δρ	+ .10	— 1.98
	ρ	+ .17	+ 2.76

Sept. 3

Corr. Chron. + 2 m. 40.15 s.

	α h. m. s.	δ ° ′ ″
5257, B. A. C.	15 45 18.68	—16 17 [2.78

Parthenope — 5257, B. A. C.

		Δ α m. s.	Δ δ ′ ″
Sid. T.	18 42 36.19	— 1 24.62	—20 18.07
	Δρ	+ .09	— 1.86
	ρ	+ .14	+ 2.91

PARTHENOPE.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
.850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
pt. 6	(° 25) - - - - -	41.0	54.0	6.8	19 8 53.93	1	42.628	+ 1 19.52	— 34.999
	Parthenope - - -	0.9		26.0	10 13.45	2	47.460		
	(° 25) - - - - -	17.9	30.2	43.0	11 30.37	1	42.586	1 19.20	35.181
	Parthenope - - -	37.0	49.7	2.0	12 49.57	2	47.600		
	(° 25) - - - - -	27.2	40.2	53.1	15 40.16	1	42.273	1 19.94	35.329
	Parthenope - - -	47.2	0.0	13.1	16 0.10	2	47.435		
	(° 25) - - - - -	50.9	3.2	16.2	24 3.43	1	41.631	1 20.67	35.508
	Parthenope - - -	11.3	24.0	37.0	25 24.10	2	46.972		
	(° 25) - - - - -	56.1	8.7	21.6	28 8.80	1	41.322	+ 1 20.36	— 35.405
	Parthenope - - -	16.0	29.5	42.0	29 29.16	2	46.560		
pt. 10	Parthenope - - -	15.2	28.0	41.0	18 42 28.07	1	42.530		
	29306, Lalande - -	42.1	54.6	7.9	46 54.87	2	42.875	— 4 26.80	+ 30.512
	Parthenope - - -	5.2		31.0	51 18.10	1	42.545		
	29306, Lalande - -	31.5	44.2	57.0	55 44.23	2	42.601	4 26.13	30.223
	Parthenope - - -	40.2		6.5	59 53.35	1	42.385		
	29306, Lalande - -	6.2	19.1	32.0	19 4 19.00	2	42.289	4 25.65	30.071
	Parthenope - - -	35.1		1.0	8 48.05	1	42.242		
	29306, Lalande - -	0.4	13.8	26.5	13 13.57	2	42.060	— 4 25.52	+ 29.985
pt. 11	Parthenope - - -	48.0	1.0	14.0	18 26 1.00	2	29.710		
	29306, Lalande - -	44.7	57.2	10.0	28. 57.30	2	35.223	— 2 56.30	+ 5.513
	Parthenope - - -	34.0		1.0	30 47.50	2	29.900		
	29306, Lalande - -	30.3	43.0	56.0	33 43.10	2	35.152	2 55.60	5.252
	Parthenope - - -	42.5	55.2	8.0	35 55.23	2	29.755		
	29306, Lalande - -	39.1	51.7	4.0	38 51.60	2	35.042	2 56.37	5.287
	Parthenope - - -	55.6	8.5	21.5	41 8.53	2	29.800		
	29306, Lalande - -	51.7	4.2	17.2	44 4.37	2	34.850	2 55.84	5.050
	Parthenope - - -	12.7	25.1	38.0	45 25.26	2	29.675		
	29306, Lalande - -	7.2	20.0	33.2	48 20.13	2	34.738	2 54.87	5.063
	Parthenope - - -	25.2	37.7	50.8	49 37.90	2	29.488		
	29306, Lalande - -	20.3	32.5	45.7	52 32.83	2	34.528	2 54.93	5.040
	Parthenope - - -	39.1	52.0	4.1	55 51.73	2	29.529		
	29306, Lalande - -	34.3	46.2	59.2	58 46.57	2	34.312	2 54.84	4.783
	Parthenope - - -	33.2		59.0	19 0 46.10	2	29.250		
	29306, Lalande - -	27.8	40.0	53.5	3 40.43	2	34.121	— 2 54.33	+ 4.871
pt. 12	Parthenope - - -	33.0	46.2		18 53 46.02	3	34.182		
	29306, Lalande - -	55.2	8.1	20.9	55 8.07	2	43.841	— 1 22.05	— 20.253
	Parthenope - - -	25.0	38.0		19 4 37.91	3	33.670		
	29306, Lalande - -	46.5	59.0	12.0	5 59.16	2	43.355	1 21.25	20.227
	Parthenope - - -	0.0		25.5	8 12.75	3	33.700		
	29306, Lalande - -	21.1	34.0	47.2	9 34.10	2	43.051	1 21.35	20.561
	Parthenope - - -	26.0	38.7	52.0	11 38.90	3	33.509		
	29306, Lalande - -	47.5	0.7	13.0	13 0.40	2	42.831	1 21.50	20.590
	Parthenope - - -		17.0	29.2	29 16.68	3	32.471		
	29306, Lalande - -	23.5	36.4	49.1	30 36.33	2	41.595	— 1 19.65	— 20.788

RESULTS.

Corr. Chron. + 2 m. 48.80 s.

	α h. m. s.	δ ° ′ ″
(° 25)	15 46 56.37	—16 48 33.35

Parthenope—(° 25)		Δα m. s.	Δδ ′ ″
Sid. T.	19 21 36.08	+ 1 19.94	— 9 2.30
	Δρ	— .08	— 1.30
	p	+ .16	+ 2.72

Corr. Chron. + 3 m. 0.99 s.

	α h. m. s.	δ ° ′ ″
29306, Lalande,	15 58 39.27	—17 31 34.12

Parthenope—29306, Lalande,		Δα m. s.	Δδ ′ ″
Sid. T.	18 58 37.88	— 4 26.02	+ 7 44.11
	Δρ	— .04	.70
	p	+ .14	+ 2.75

Corr. Chron. + 3 m. 3.07 s.

	α h. m. s.	δ ° ′ ″
29306, Lalande,	15 58 39.26	—17 31 34.08

Parthenope—29306, Lalande,		Δα m. s.	Δδ ′ ″
Sid. T.	18 46 14.73	— 2 55.38	+ 1 18.49
	Δρ	.00	.11
	p	+ .13	+ 2.78

Corr. Chron. + 3 m. 5.98 s.

	α h. m. s.	δ ° ′ ″
29306, Lalande,	15 58 39.24	—17 30 34.04

Parthenope—29306, Lalande,		Δα m. s.	Δδ ′ ″
Sid. T.	19 12 36.43	— 1 21.16	— 5 14.83
	Δρ	+ .03	— .61
	p	+ .15	+ 2.67

PARTHENOPE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Sept. 13	29306, Lalande - -	14.2		39.7	19 2 26.95	1 37.840	+ 0 11.50	— 45.462
	Parthenope - - -	25.7		51.2	2 38.45	3 23.222		
	29306, Lalande - -	7.2		32.5	5 19.85	1 37.848	0 11.95	45.304
	Parthenope - - -	19.3		44.3	5 31.80	3 23.072		
	29306, Lalande - -	30.1		56.1	8 43.10	1 37.748	0 12.30	45.464
	Parthenope - - -	42.5		8.3	8 55.40	3 23.132		
	29306, Lalande - -	58.2		23.5	14 10.85	1 37.549	0 12.30	45.431
	Parthenope - - -	10.3		36.0	14 23.15	3 22.900		
	29306, Lalande - -	23.0		49.0	20 36.00	1 37.042	+ 0 12.85	— 45.620
	Parthenope - - -	36.2		1.5	20 48.85	3 22.582		
Sept. 17	Parthenope - - -	2.0	15.2	28.0	18 41 15.07	2 45.350		
	5408, B. A. C. - -	53.5	6.5	19.7	42 6.47	2 45.790	— 0 51.40	+ 0.440
	Parthenope - - -	26.8	39.5	52.3	45 39.53	2 45.387		
	5408, B. A. C. - -		29.7	43.2	46 30.08	2 45.757	0 50.55	0.370
	Parthenope - - -	48.1	1.0	13.2	50 0.77	2 45.205		
	5408, B. A. C. - -	37.9	51.5	4.2	50 51.20	2 45.586	0 50.43	0.381
	Parthenope - - -	34.1	47.2	0.2	59 47.17	2 43.969		
	5408, B. A. C. - -		37.0	50.0	19 0 36.97	2 44.235	0 49.80	0.266
	Parthenope - - -	1.5	14.0	27.2	5 14.23	2 43.869		
	5408, B. A. C. - -	49.7	3.5	16.1	6 3.10	2 44.148	0 48.87	0.279
	Parthenope - - -	26.0	39.3	52.2	7 39.16	2 43.850		
	5408, B. A. C. - -		28.7	41.9	8 28.71	2 43.879	0 49.55	0.029
	Parthenope - - -	33.0	46.0	59.0	9 46.07	2 43.778		
	5408, B. A. C. - -	21.5	34.6	47.7	10 34.66	2 43.851	0 48.59	+ 0.073
	Parthenope - - -	12.7	25.2	38.0	12 25.30	2 43.684		
	5408, B. A. C. - -	1.3	14.2	27.5	13 14.33	2 43.683	0 49.03	— 0.001
	Parthenope - - -	6.8	19.5	32.0	15 19.43	2 43.517		
	5408, B. A. C. - -	56.2	9.0	22.0	16 9.07	2 43.582	0 49.64	+ 0.065
	Parthenope - - -	1.2	13.7	27.0	17 13.97	2 43.388		
	5408, B. A. C. - -	49.1	2.3	15.9	18 2.43	2 43.333	0 48.46	— 0.055
	Parthenope - - -	4.5	17.7	30.2	19 17.47	3 43.432		
	5408, B. A. C. - -	53.0	6.2	19.2	20 6.13	2 43.327	0 48.66	0.108
	Parthenope - - -	52.0	4.7	17.5	21 4.73	2 43.313		
	5408, B. A. C. - -	40.0	53.2	5.6	21 52.93	2 43.229	— 0 48.20	— 0.084
Sept. 21	29696, Lalande - -	52.8	5.2	18.7	18 50 5.57	1 39.009	+ 0 48.60	— 22.292
	Parthenope - -		54.1	7.0	50 54.17	2 31.134		
	29696, Lalande - -	52.2	4.8	17.9	53 4.96	1 39.050	0 48.77	22.287
	Parthenope - - -	41.0	53.7	6.5	53 53.73	2 31.170		
	29696, Lalande - -	32.5	45.0	58.2	55 45.23	1 38.740	0 48.90	22.656
	Parthenope - - -		34.0	47.0	56 34.13	2 31.229		
	29696, Lalande - -	59.2	12.5	25.7	58 12.46	1 38.792	0 48.91	22.606
	Parthenope - - -	48.6	1.5	14.0	59 1.37	2 31.231		
	29696, Lalande - -	16.2	29.3	42.5	19 2 29.33	1 38.540	0 48.93	22.677
	Parthenope - - -	5.8	18.0	31.0	3 18.26	2 31.050		
	29696, Lalande - -	50.2	2.9	16.0	5 3.03	1 38.520	+ 0 50.04	— 22.675
	Parthenope - - -	40.0	53.2	6.0	5 53.07	2 31.028		

RESULTS.

Corr. Chron. + 3 m. 9.10 s.

	α h. m. s.	δ ° ′ ″
29306, Lalande,	15 58 39.23	—17 31 34.00

Parthenope—29306, Lalande,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	19 11 36.63	+ 0 12.18	—11 40.39
		Δ ρ .07	+ 1.32
		p + .15	+ 2.68

Corr. Chron. + 3 m. 21.22 s.

	α h. m. s.	δ ° ′ ″
5408, B. A. C.	16 6 1.54	—18 8 41.64

Parthenope—5408, B. A. C.

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	19 8 44.80	— 0 49.43	+ 0 2.12
		Δ ρ — .00	.00
		p + .14	+ 2.67

Corr. Chron. — 1 m. 24.58 s.

	α h. m. s.	δ ° ′ ″
29696, Lalande,	16 10 54.49	—18 27 30.13

Parthenope—29696, Lalande,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	18 58 15.07	+ 0 49.14	— 5 46.22
		Δ ρ — .02	— .56
		p + .12	+ 2.66

(Continued.)

PARTHENOPE.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
0.		s.	s.	s.	h. m. s.	w. rev.	m. s.	rev.
21	29696, Lalande . .	0.0	13.0	26.0	19 7 13.00	1 38.404	+ 0 49.85	— 22.484
	Parthenope . . .	49.7		16.0	8 2.85	2 30.721		
22	29696, Lalande . .	55.0	8.0	21.2	18 55 8.07	1 52.090	+ 2 28.80	— 46.260
	Parthenope . . .	24.0	37.1	49.5	57 36.87	3 38.270		
	29696, Lalande . .	45.2	58.1	11.3	59 58.20	1 46.785	2 28.37	45.877
	Parthenope . . .	13.5	26.7	39.5	19 2 26.57	3 32.582		
	29696, Lalande . .	10.3	23.4	36.6	4 23.30	1 46.732	2 29.70	46.009
	Parthenope . . .	40.0	53.0	6.0	6 53.00	3 32.661		
	29696, Lalande . .	5.7	18.5	31.7	9 18.63	1 46.397	2 29.50	46.293
	Parthenope . . .	35.2	48.0	1.2	11 48.13	3 32.610		
	29696, Lalande . .	29.0	42.0	54.0	13 41.67	1 46.411	2 30.33	46.348
	Parthenope . . .	59.0	12.0	25.0	15 12.00	3 32.679		
	29696, Lalande . .	44.2	57.1	10.5	18 57.26	1 46.230	2 30.31	46.440
	Parthenope . . .	15.2	27.0	40.5	21 27.57	3 32.590		
	29696, Lalande . .	56.2	8.7	22.0	25 8.97	1 45.880	2 30.83	46.736
	Parthenope . . .	27.4	40.0	52.0	27 39.80	3 32.536		
	29696, Lalande . .	59.3	12.5	35.2	30 12.33	1 45.461	+ 2 31.65	+ 46.731
	Parthenope . . .		44.0	57.0	32 43.98	3 32.112		
23	29696, Lalande . .	44.9	58.5	11.5	18 51 58.30	1 34.470	+ 4 9.46	— 69.500
	Parthenope . . .	55.0	8.0	20.0	56 7.76	3 43.890		
	29696, Lalande . .	14.0	27.1	39.1	59 26.73	1 34.342	4 9.34	69.558
	Parthenope . . .	23.2	36.0	49.0	19 3 36.07	3 43.820		
	29696, Lalande . .	14.1		39.0	6 26.55	1 34.340	4 10.61	69.615
	Parthenope . . .	24.2	37.3	50.0	10 37.16	3 43.875		
	29696, Lalande . .	5.0	17.8	30.2	13 17.67	1 33.850	4 11.25	69.875
	Parthenope . . .		28.5	42.0	17 28.92	3 43.645		
	29696, Lalande . .	1.2	13.5	26.5	20 13.73	1 33.640	+ 4 11.44	— 69.837
	Parthenope . . .	12.0	25.5	38.0	24 25.17	3 43.397		
1	Parthenope . . .		33.0	46.2	19 24 33.12	1 48.322		
	5580, B. A. C. . .	30.7	44.1	56.2	28 43.67	2 42.598	— 4 10.55	+ 24.443
	Parthenope . . .	57.5	10.4	24.0	30 10.63	1 48.052		
	5580, B. A. C. . .	7.1	20.2	33.5	34 20.26	2 42.318	4 9.63	24.433
	Parthenope . . .	13.0	26.0	39.0	40 26.00	1 48.049		
	5580, B. A. C. . .	22.0	34.7	48.1	44 34.70	2 42.215	4 8.70	24.333
	Parthenope . . .	49.7		16.0	49 2.85	1 47.743		
	5580, B. A. C. . .	58.3	11.2	24.3	53 11.26	2 41.880	4 8.41	24.304
	Parthenope . . .	59.6		26.0	54 12.80	1 47.313		
	5580, B. A. C. . .	8.3	20.8	34.1	58 21.07	2 41.278	— 4 8.20	+ 24.132
2	Parthenope . . .	54.0	7.2		19 21 7.03	2 32.421		
	5580, B. A. C. . .	17.4	30.0	43.0	23 30.13	2 35.633	— 2 23.10	+ 3.212
	Parthenope . . .	3.5	16.2	29.4	26 16.37	2 32.127		
	5580, B. A. C. . .	26.4	39.2	52.0	28 39.30	2 35.342	2 22.83	3.215
	Parthenope . . .	54.4		21.0	30 7.70	2 32.010		
	5580, B. A. C. . .	17.5	31.0	44.0	19 32 30.83	2 35.208	— 2 23.13	+ 3.198

RESULTS.

Corr. Chron. — 1 m. 20.53 s.

	α	δ
	h. m. s.	° ′ ″
29696, Lalande,	16 10 54.47	—18 27 30.09

Parthenope — 29696, Lalande,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	19 13 7.96	+ 2 29.94	—11 52.20
		Δ ρ .06	+ 1.29
		p + .13	+ 2.58

Corr. Chron. + 1 m. 18.80 s.

	α	δ
	h. m. s.	° ′ ″
29696, Lalande,	16 10 54.45	—18 27 30.06

Parthenope — 29696, Lalande,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	19 9 0.50	+ 4 10.42	—17 50.90
		Δ ρ — .09	— 1.91
		p + .13	+ 2.63

Corr. Chron. — 0 m. 52.57 s.

	α	δ
	h. m. s.	° ′ ″
5580, B. A. C.	16 33 6.10	—19 37 51.35

Parthenope—5580, B. A. C.

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	19 38 48.51	— 4 9.10	+ 6 13.72
		Δ ρ — .04	.79
		p + .13	+ 2.55

(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Sept. 17	Weisse, 0.444	10.0	22.2	35.0	22 19 22.40	2 21.570	+ 1 25.10	+ 10.120
	Flora	35.0	47.5	0.0	20 47.56	2 11.450		
	Weisse, 0.444	1.5	14.3	26.1	0 15 13.97	2 26.239	1 21.36	7.569
	Flora	23.0	35.0	48.0	16 35.33	2 18.670		
	Weisse, 0.444	22.2	33.9	47.0	19 34.37	2 25.981	19 1.56	7.341
	Flora	42.0	54.0	7.0	20 54.33	2 18.640		
	Weisse, 0.444	36.2	48.1	1.0	24 48.43	2 25.910	+ 1 20.90	+ 7.030
	Flora	57.0	9.0	22.0	26 9.33	2 18.880		
Sept. 20	Weisse, 0.421	41.0	53.7	6.0	22 1 53.57	1 46.211	+ 0 21.66	— 12.838
	Flora	3.0	15.7	27.0	2 15.23	2 28.882		
	Weisse, 0.421	15.5	28.1	40.5	4 28.03	1 46.222	0 21.50	12.906
	Flora	37.5	49.0	2.1	4 49.53	2 28.961		
	Weisse, 0.421	41.7	54.0	7.5	6 54.40	2 16.013	0 21.17	13.119
	Flora	3.5	15.2	28.0	7 15.57	2 29.132		
	Weisse, 0.421	44.1	56.7	10.0	9 56.93	2 16.191	0 20.92	13.077
	Flora	5.2		30.5	10 17.85	2 29.268		
	Weisse, 0.421	45.0	57.6	10.5	12 57.70	2 16.180	0 20.70	13.159
	Flora	6.0	18.2	31.0	13 18.40	2 29.339		
	Weisse, 0.421	53.0	5.2	18.3	16 5.50	2 16.295	+ 0 21.15	— 13.247
	Flora	14.2		39.1	16 26.65	2 29.542		
Sept. 21	Flora	6.0	19.1	31.5	23 4 18.87	3 34.110		
	Weisse, 0.421		49.0	1.5	4 48.92	1 48.360	— 0 30.05	— 45.830
	Flora	9.2	22.3	34.2	8 21.90	3 34.250		
	Weisse, 0.421		52.0	5.2	8 52.25	1 48.505	0 30.35	45.825
	Flora	12.2	24.0	37.5	16 24.57	3 34.456		
	Weisse, 0.421	42.7	55.0	8.0	16 55.23	1 48.432	0 30.66	46.104
	Flora	18.4	30.7	43.5	19 30.87	3 34.519		
	Weisse, 0.421		2.0	14.0	20 1.77	1 48.530	0 30.90	46.069
	Flora	17.4	30.2	42.2	22 29.93	3 34.668		
	Weisse, 0.421		1.2	13.2	23 0.93	1 48.411	0 31.00	46.337
	Flora	29.3	42.1	54.0	26 41.80	2 34.620		
	Weisse, 0.421	0.3	13.0	25.5	27 12.93	1 48.527	0 31.13	46.173
	Flora	44.7	57.2	10.2	30 57.37	3 34.812		
	Weisse, 0.421	16.0	29.1	41.5	31 28.89	1 48.568	0 31.52	46.324
	Flora	27.1	40.2	52.0	34 39.77	3 34.770		
	Weisse, 0.421	58.7	11.2		35 11.07	1 48.497	0 31.30	46.353
	Flora	23.2	36.3	48.5	36 36.00	3 34.862		
	Weisse, 0.421	55.1	7.4	19.2	37 7.23	1 48.580	— 0 31.23	— 46.362
Oct. 1	Weisse, 0.239	2.5	15.2	27.5	22 6 15.07	3 40.811	+ 2 10.33	+ 65.870
	Flora	13.0	25.2	38.0	8 25.40	1 35.021		
	Weisse, 0.239	52.3	5.1	17.1	10 4.83	3 40.730	2 10.14	65 770
	Flora	2.7	15.1	27.1	12 14.97	1 35.040		
	Weisse, 0.239	25.8	37.8	50.5	22 13 38.03	3 40.720	+ 2 10.50	+ 65.620
	Flora	36.1	48.5	1.0	15 48.53	1 35.180		

RESULTS.

Corr. Chron. m. s. + 3 21.60

	α h. m. s.	δ ° ′ ″
Weisse, 0.444,	0 26 14.91	— 9 32 31.83

Flora — Weisse, 0.444,

	Δ α h. m. s.	Δ δ m s. ′ ″
Sid. T.	0 2 24.00	+ 1 23.38 + 2 19.51
Δρ		.00 .09
p	—	.05 + 7.03

Corr. Chron. m. s. — 1 28.30

	α h. m. s.	δ ° ′ ″
Weisse, 0.421,	0 25 2.62	— 9 51 27.29

Flora — Weisse, 0.421,

	Δ α h. m. s.	Δ δ m. s. ′ ″
Sid. T.	22 7 35.57	+ 0 21.18 — 3 20.69
Δρ		.00 — .16
p	—	.28 + 6.90

Corr. Chron. m. s. — 1 24.28

	α h. m. s.	δ ° ′ ″
Weisse, 0.421,	0 25 2.62	— 9 51 27.31

Flora — Weisse, 0.421,

	Δ α h. m. s.	Δ δ m. s. ′ ″
Sid. T.	23 20 36.80	— 0 30.90 —11 49.34
Δρ		.01 + .47
p	—	.14 + 7.06

(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic. w.	rev.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.			m. s.	rev.
t. 1	Weisse, 0.239	59.0		24.1	22 17 11.55	3	40.762	+ 2 9.62	+ 65.527
	Flora	8.5	21.0	34.0	19 21.17	1	35.315		
	Weisse, 0.239	39.0	51.2	4.1	32 51.43	3	40.788	2 9.24	65.158
	Flora	48.2	0.3	13.5	35 0.67	1	35.710		
	Weisse, 0.239	4.2	17.1	29.7	36 17.00	3	40.782	2 9.80	65.112
	Flora	14.1	27.1	39.2	38 26.80	1	35.750		
	Weisse, 0.239	26.0	38.4	50.7	39 38.37	3	40.826	2 8.63	65.115
	Flora	34.7	47.0	59.3	41 47.00	1	35.791		
	Weisse, 0.239	32.0	44.8	57.5	43 44.77	3	40.784	2 9.23	64.953
	Flora	41.2	54.0	6.8	45 54.00	1	35.911		
	Weisse, 0.239	24.1	35.8	49.1	47 36.33	3	40.897	2 8.90	65.094
	Flora	32.7	45.7	57.3	49 45.23	1	35.883		
	Weisse, 0.239	24.0	36.1	49.0	51 36.37	3	40.914	+ 2 8.73	+ 64.925
	Flora	32.5	45.1	57.7	53 45.10	1	36.069		
t. 3	Weisse, 0.239	57.0	10.2	22.0	21 56 9.73	2	46.210	+ 0 27.67	+ 21.515
	Flora	25.2	37.0	50.0	56 37.40	1	54.862		
	Weisse, 0.239	2.5	15.0	27.3	22 2 14.93	2	46.232	0 27.75	21.398
	Flora		42.7	55.1	2 42.68	1	55.001		
	Weisse, 0.239	34.2	47.0	59.0	15 46.73	2	46.609	0 26.97	21.324
	Flora	1.4	13.5	26.2	16 13.70	1	55.452		
	Weisse, 0.239	6.2	18.5	31.5	18 18.73	2	46.472	0 26.60	21.087
	Flora	33.0	45.2	57.8	18 45.33	1	55.552		
	Weisse, 0.239	52.5	5.2	17.0	21 4.97	2	46.452	0 26.70	20.997
	Flora	19.0	31.7	44.3	21 31.67	1	55.622		
	Weisse, 0.239	15.7	28.2	40.0	23 27.97	2	46.019	+ 0 26.50	+ 20.519
	Flora	42.2	54.2	7.0	23 54.47	1	55.667		
t. 4	Flora	35.0	48.1	1.0	21 32 48.03	2	43.745		
	Weisse, 0.239	58.0	10.3	23.2	33 10.50	2	44.889	— 0 22.47	+ 1.144
	Flora	44.3	57.1	9.0	34 56.80	2	43.677		
	Weisse, 0.239	6.5	19.0	31.5	35 19.00	2	44.910	0 22.20	1.233
	Flora	16.7	29.0	41.7	39 29.13	2	43.723		
	Weisse, 0.239	39.0	51.8	4.2	39 51.67	2	44.962	0 22.54	1.239
	Flora	53.2	5.6	18.0	42 5.60	2	43.911		
	Weisse, 0.239	15.0	28.2	40.7	42 27.97	2	44.952	0 22.37	1.041
	Flora	53.1	5.7	18.0	44 5.60	2	43.912		
	Weisse, 0.239	16.5	28.2	40.7	44 28.47	2	45.000	0 22.80	1.088
	Flora	49.3	1.7	14.7	46 1.90	2	43.920		
	Weisse, 0.239	12.0	24.6	36.8	46 24.47	2	45.057	0 22.57	1.137
	Flora	5.7	18.2	31.0	48 18.30	2	44.050		
	Weisse, 0.239	28.5		53.7	48 41.10	2	45.090	0 22.80	1.040
	Flora	57.0	9.7	23.0	50 9.90	2	44.042		
	Weisse, 0.239	20.0	33.2	45.5	50 32.90	2	45.111	0 23.00	1.068
	Flora	21.5	34.0	47.0	52 34.17	2	44.132		
	Weisse, 0.239	44.0	57.2	9.7	52 56.97	2	45.119	— 0 22.80	+ 0.987
t. 6	Weisse, 0.189	45.1	57.2	10.2	22 6 57.50	2	40.721	+ 0 33.80	+ 25.927
	Flora		31.0	44.0	7 31.30	1	44.961		

RESULTS.

Corr. Chron. — 0 51.00 m. s.

	α h. m. s.	δ ° ′ ″
Weisse, 0.239,	0 13 46.78	—11 30 42.84

Flora—Weisse, 0.239,	Δα m. s.	Δδ ′ ″
Sid. T. 22 31 11.89	+ 2 9.51	+16 43.87
Δρ	— .02	.78
p	— .22	+ 7.13

Corr. Chron. — 0 41.05 m. s.

	α h. m. s.	δ ° ′ ″
Weisse, 0.239,	0 13 46.78	—11 30 42.96

Flora—Weisse, 0.239,	Δα m. s.	Δδ ′ ″
Sid. T. 22 12 36.49	+ 0 27.03	+ 5 24.91
Δρ	— .01	.27
p	— .25	+ 6.87

Corr. Chron. — 0 38.21 m. s.

	α h. m. s.	δ ° ′ ″
Weisse, 0.239,	0 13 46.78	—11 30 42.96

Flora—Weisse, 0.239,	Δα m. s.	Δδ ′ ″
Sid. T. 21 42 45.06	— 0 22.62	+ 0 17.03
Δρ	.00	.02
p	— .31	+ 6.95

(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs	m. s.	revs.
Oct. 6	Weisse, 0.189	30.3	43.2	55.0	22 8 42.83	2 40.650	+ 0 34.04	+ 25.696
	Flora	4.2	16.9	29.5	9 16.87	1 45.121		
	Weisse, 0.189	7.5	19.7	32.5	10 19.90	2 40.801	0 33.73	25.959
	Flora	41.4	53.5	6.0	10 53.63	1 45.009		
	Weisse, 0.189	2.3	14.7	27.1	12 14.70	2 40.732	0 33.57	25.710
	Flora	35.7	47.9	1.2	12 48.27	1 45.189		
	Weisse, 0.189	57.5	9.7	22.0	14 9.73	2 40.880	0 33.47	25.938
	Flora	30.9	43.0	55.7	14 43.20	1 45.109		
	Weisse, 0.189	40.7	53.0	5.7	15 53.13	2 40.940	0 33.64	25.736
	Flora	14.1	26.7	39.5	16 26.77	1 45.371		
	Weisse, 0.189	24.2	36.6	49.3	17 36.70	2 40.965	0 33.17	25.732
	Flora	57.2	9.7	22.7	18 9.87	1 45.400		
	Weisse, 0.189	19.0	31.0	43.7	22 31.23	2 40.989	0 33.15	25.606
	Flora		4	17.0	23 4.38	1 45.550		
	Weisse, 0.189	11.5	24.0	37.1	24 24.20	2 41.035	0 32.97	25.502
	Flora	44.5	57.0	10.0	24 57.17	1 45.700		
	Weisse, 0.189	7.2	19.7	32.1	26 19.67	2 41.068	0 32.73	25.575
	Flora	39.7	52.5	5.0	26 52.40	1 45.660		
	Weisse, 0.189	51.7	4.0	17.0	28 4.23	2 41.061	0 32.84	25.563
	Flora	25.1	37.0	49.1	28 37.07	1 45.665		
	Weisse, 0.189	34.0	47.0	0.5	30 47.17	2 41.222	0 32.80	25.490
	Flora		30.4	42.7	31 39.97	1 45.899		
	Weisse, 0.189	7.2	19.7	32.5	32 19.80	2 41.271	+ 0 32.97	+ 25.556
	Flora	40.3	52.7	5.3	32 52.77	1 45.882		
Oct. 7	Flora	32.5	44.8	57.5	21 10 44.93	2 26.740		
	Weisse, 0.189		0.0	12.5	11 0.03	2 35.406	− 0 15.10	+ 8.666
	Flora	49.6	2.0	14.5	13 2.03	2 26.768		
	Weisse, 0.189	5.0	17.2	29.7	13 17.30	2 35.507	0 15.27	8.739
	Flora	58.2	10.5	23.2	16 10.63	2 26.915		
	Weisse, 0.189	13.5	26.0	38.3	16 25.53	2 35.597	0 14.90	8.682
	Flora	23.6	36.5	49.0	18 36.37	2 27.002		
	Weisse, 0.189	39.2	51.3	3.7	18 51.40	2 35.710	0 15.03	8.708
	Flora	38.2	50.3	2.5	20 50.33	2 27.078		
	Weisse, 0.189	53.2	6.0	18.5	21 5.90	2 35.701	0 15.57	8.623
	Flora	54.2	7.2	19.5	23 6.97	2 27.041		
	Weisse, 0.189	9.3	22.0	34.2	23 21.83	2 35.716	0 14.86	8.675
	Flora	51.4	4.0	16.3	26 3.90	2 27.205		
	Weisse, 0.189	7.0	19.2	32.5	26 19.57	2 35.630	0 15.67	8.425
	Flora	43.2	55.0	8.0	28 55.40	2 27.290		
	Weisse, 0.189	59.0	11.5	24.2	29 11.57	2 35.750	0 16.17	8.460
	Flora	27.0	39.0	51.2	31 39.07	2 27.346		
	Weisse, 0.189	42.0	54.5	7.1	31 54.53	2 35.838	0 15.46	8.492
	Flora	18.7	31.0	43.7	34 31.13	2 27.482		
	Weisse, 0.189	34.4	47.0	59.7	34 47.03	2 35.910	0 15.90	8.428
	Flora	40.0	52.7	5.2	37 52.63	2 27.570		
	Weisse, 0.189	56.0	9.0	21.5	38 8.83	2 35.915	− 0 16.20	+ 8.345

RESULTS.

Corr. Chron. — 0 m. 28.66 s.

	α h. m. s.	δ ° ′ ″
Weisse, 0.189,	0 11 11.85	−11 46 37.55

Flora—Weisse, 0.189,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	22 19 21.62	+ 0 33.30	+ 6 34.87
		Δρ — .01	.32
		ρ — .23	+ 7.07

Corr. Chron. — 0 m. 24.43 s.

	α h. m. s.	δ ° ′ ″
Weisse, 0.189,	0 11 11.85	−11 46 37.62

Flora—Weisse, 0.189,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	21 23 13.15	− 0 15.47	+ 2 11.69
		Δρ .00	.13
		ρ — .32	+ 6.89

FLORA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
150.		s.	s.	s.	h. m. s.	w. revs.	m. s.	m. s.
8	Flora - - - - -	56.0	8.0	21.0	21 15 8.33	2 44.680		
	Weisse, 0.189 - -	58.0	11.0	23.5	16 10.83	2 37.392	— 1 2.50	— 7.288
	Flora - - - - -	12.7	25.2	38.3	18 25.40	2 44.808		
	Weisse, 0.189 - -	15.3	28.5	40.7	19 28.17	2 37.389	1 2.77	7.419
	Flora - - - - -	29.3	41.5	54.1	20 41.63	2 44.818		
	Weisse, 0.189 - -	31.7	44.4	57.0	21 44.37	2 37.426	1 2.74	7.392
	Flora - - - - -	39.4	51.3	4.2	22 51.63	2 44.861		
	Weisse, 0.189 - -	42.2	54.4	7.2	23 54.60	2 37.545	1 2.97	7.316
	Flora - - - - -	46.3		11.9	24 59.10	2 45.090		
	Weisse, 0.189 - -	49.7	2.3	14.7	26 2.23	2 37.598	1 3.13	7.492
	Flora - - - - -	46.5	59.2	12.3	27 59.33	2 45.080		
	Weisse, 0.189 - -	50.3	2.5	15.3	29 2.70	2 37.562	1 3.37	7.518
	Flora - - - - -	2.5	15.3	27.9	30 15.23	2 45.090		
	Weisse, 0.189 - -	6.0	18.3	31.3	31 18.53	2 37.778	1 3.30	7.312
	Flora - - - - -	30.3	43.6	56.1	32 43.33	2 45.221		
	Weisse, 0.189 - -	34.1	46.3	59.5	33 46.63	2 37.660	1 3.30	7.561
	Flora - - - - -	54.8	7.9	20.3	35 7.67	2 45.190		
	Weisse, 0.189 - -	58.5	11.3	23.6	36 11.13	2 37.690	1 3.46	7.500
	Flora - - - - -	15.3	28.2	40.3	37 27.93	2 45.272		
	Weisse, 0.189 - -	19.1	31.3	44.0	38 31.47	2 37.886	— 1 3.54	— 7.386
9	Flora - - - - -	17.1	29.6	42.3	21 37 29.67	2 56.847		
	Weisse, 0.189 - -	6.7	19.5	32.0	39 19.40	2 34.642	— 1 49.73	— 22.205
	Flora - - - - -	51.4	4.2	16.2	41 3.93	3 27.010		
	Weisse, 0.189 - -	11.5	54.2	6.5	42 54.07	2 34.670	1 50.14	22.252
	Flora - - - - -	45.5	57.0	10.6	44 57.70	3 27.058		
	Weisse, 0.189 - -	36.2	48.7	1.2	46 48.70	2 34.645	1 51.00	22.325
	Flora - - - - -	29.1	41.5	54.5	47 41.70	3 27.102		
	Weisse, 0.189 - -	19.7	32.0	44.1	49 31.93	2 34.700	1 50.23	22.324
	Flora - - - - -	6.2	19.0	31.7	51 18.97	3 27.225		
	Weisse, 0.189 - -	57.2	9.7	22.0	53 9.63	2 34.687	1 50.66	22.450
	Flora - - - - -	5.0	18.2	30.9	54 18.03	3 27.321		
	Weisse, 0.189 - -	56.0	9.2	21.7	56 8.97	2 34.800	— 1 50.94	— 22.433
15	Flora - - - - -	1.5		27.6	8 7 14.55	2 23.801		
	Weisse, 0.102 - -	17.7	29.5	42.1	8 29.79	2 23.761	— 1 15.24	— 0.040
	Flora - - - - -	16.0	29.2	41.3	9 28.83	2 23.836		
	Weisse, 0.102 - -	31.5	43.7	56.2	10 43.80	2 23.810	1 14.97	0.026
	Flora - - - - -	31.7	44.2	56.6	11 44.17	2 23.928		
	Weisse, 0.102 - -	46.1	58.6	10.9	12 58.53	2 23.819	1 14.36	— 0.109
	Flora - - - - -	56.8	9.3	22.7	14 9.60	2 23.911		
	Weisse, 0.102 - -	12.8	24.2	36.9	15 24.37	2 23.920	1 14.77	+ 0.009
	Flora - - - - -	3.2	15.2	28.3	18 15.57	2 24.007		
	Weisse, 0.102 - -	17.5	30.2	42.6	19 30.10	2 24.021	1 14.53	+ 0.014
	Flora - - - - -	13.2	25.3	38.1	20 25.53	2 24.093		
	Weisse, 0.102 - -	27.5	40.3	52.7	21 40.17	2 24.026	1 14.64	— 0.067
	Flora - - - - -	33.2	46.1	58.6	22 45.97	2 24.102		
	Weisse, 0.102 - -	49.0	1.4	14.2	8 24 1.53	2 24.058	— 1 15.56	— 0.044

RESULTS.

Corr. Chron. — 0 s. 19.94

	α h. m. s.	δ ° ′ ″
Weisse, 0.189,	0 11 11.85	—11 46 37.69

Flora — Weisse, 0.189,	Δ α m. s.	Δ δ ′ ″
Sid. T. 26 26 14.02	— 1 3.11	— 1 54.01
Δρ	.00	— .12
p	— .32	+ 6.78

Corr. Chron. — 15.45 s.

	α h. m. s.	δ ° ′ ″
Weisse, 0.189,	0 11 11.85	—11 46 37.76

Flora — Weisse, 0.189,	Δ α m. s.	Δ δ ′ ″
Sid. T. 21 45 52.88	— 1 50.45	— 5 43.22
Δρ	+ .01	— .30
p	— .29	+ 6.91

(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Oct. 15	Flora	41.4	54.3	6.8	8 25 54.17	2 24.218		
	Weisse, 0.102 . .	57.0	9.4	21.8	27 9.40	2 24.152	— 1 15.23	— 0.066
	Flora	52.3	4.5	16.7	28 4.50	2 24.238		
	Weisse, 0.102 . .	7.2	19.6	31.5	29 19.43	2 24.200	1 14.93	0.038
	Flora	0.4	12.2	25.2	30 12.60	2 24.257		
	Weisse, 0.102 . .	15.2	27.7	40.5	31 27.80	2 24.092	1 15.20	0.165
	Flora	22.6	35.3	48.1	33 35.33	2 24.421		
	Weisse, 0.102 . .	39.3	51.7	3.7	34 51.57	2 24.252	1 16.24	0.169
	Flora	32.0	44.6	57.7	35 44.77	2 24.459		
	Weisse, 0.102 . .	48.4	0.4	13.6	37 0.80	2 24.279	1 16.03	0.180
	Flora	46.3	58.5	10.7	37 58.50	2 24.440		
	Weisse, 0.102 . .	1.7	13.8	26.9	39 14.13	2 24.291	1 15.63	0.149
	Flora	55.3	7.5	20.6	40 7.80	2 24.492		
	Weisse, 0.102 . .	11.0	23.8	36.4	41 23.73	2 24.360	— 1 15.93	— 0.132
Oct. 16	Flora	0.3	12.0	25.2	7 51 12.50	2 26.740		
	Weisse, 0.102 . .	51.5	4.5	17.1	53 4.36	2 21.161	— 1 51.86	— 5.579
	Flora	16.6		41.2	54 28.90	2 26.831		
	Weisse, 0.102 . .	7.5	20.3	33.2	56 20.33	2 21.346	1 51.43	5.485
	Flora	30.7	42.5	55.5	57 42.90	2 26.910		
	Weisse, 0.102 . .	22.4	34.6	47.1	59 34.70	2 21.189	1 51.80	5.721
	Flora	30.0	42.9	55.6	8 1 42.83	2 26.950		
	Weisse, 0.102 . .	21.6	34.0	47.2	3 34.26	2 21.329	1 51.43	5.621
	Flora	44.2	57.2	9.0	5 56.80	2 27.068		
	Weisse, 0.102 . .	36.3	43.0	1.3	7 48.53	2 21.330	1 51.73	5.738
	Flora	54.3	7.1	19.5	8 6.96	2 27.042		
	Weisse, 0.102 . .	46.0	58.7	11.2	9 58.63	2 21.359	1 51.67	5.683
	Flora	14.1	26.7	39.5	11 26.76	2 27.129		
	Weisse, 0.102 . .	5.8	18.2	31.2	13 18.40	2 21.438	1 51.64	5.691
	Flora	49.7		14.7	15 2.20	2 27.192		
	Weisse, 0.102 . .	42.0	54.5	7.1	16 54.53	2 21.545	1 52.33	5.647
	Flora	45.7		10.0	18 57.85	2 27.252		
	Weisse, 0.102 . .	37.6	49.7	2.7	20 50.00	2 21.570	1 52.15	5.682
	Flora	13.6		38.7	22 26.15	2 27.333		
	Weisse, 0.102 . .	5.2	18.0	30.8	24 18.00	2 21.563	1 51.85	5.770
	Flora	12.4	24.7	37.3	25 24.83	2 27.430		
	Weisse, 0.102 . .	4.5	16.8	29.7	27 17.00	2 21.716	1 52.17	5.714
	Flora	7.7	19.5	32.5	28 19.90	2 27.449		
	Weisse, 0.102 . .	0.0	12.2	24.6	30 12.06	2 21.701	1 52.16	5.748
	Flora	53.6	5.8	18.0	32 5.80	2 27.407		
	Weisse, 0.102 . .	45.7	58.3	10.9	33 58.30	2 21.742	1 52.50	5.665
	Flora	0.2	12.0	25.0	35 12.40	2 27.580		
	Weisse, 0.102 . .	52.5	5.0	17.5	37 4.93	2 21.739	— 1 52.53	— 5.841
Oct. 22	Weisse XXIII, 1242	53.0		18.2	9 51 6.60	1 41.811	+ 1 11.23	— 52.309
	Flora	5.0	18.0	30.5	52 17.83	3 34.040		
	Weisse XXIII, 1242	5.2	17.4	30.5	9 58 17.70	1 41.820	+ 1 11.73	— 52.452
	Flora	17.0	29.3	42.0	59 29.43	3 34.192		

RESULTS.

Corr. Chron. + 38.56 s.

	α	δ
	h. m. s.	° ′ ″
Weisse, 0.102,	0 6 23.08	—12 8 3.07

Flora — Weisse, 0.102, M. T.	Δ α	Δ δ
h. m. s.	m. s.	′ ″
8 24 37.27	— 1 15.23	— 0 1.02
Δ t	.20	
Δ ρ	.00	— .00
p	— .25	+ 6.83

Corr. Chron. + 0 37.34 m. s.

	α	δ
	h. m. s.	° ′ ″
Weisse, 0.102,	0 6 23.07	—12 8 3.15

Flora — Weisse, 0.102 M. T.	Δ α	Δ δ
h. m. s.	m. s.	′ ″
8 14 3.54	— 1 51.23	— 1 27.37
Δ t	.30	
Δ ρ	.08	+ .08
p	— .26	+ 6.81

(Continued.)

FLORA.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic. w.	rev.	Planet—Star. Δα	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.			m. s.	rev.	
50.										m. s.
22	Weisse XXIII, 1242	44.2	57.3	9.7	10 0 57.06	1	41.852	+ 1 11.24	— 52.359	Corr. Chron. + 0 29.68
	Flora - - - -	55.2	8.5	21.2	2 8.30	3	34.131			
										α δ
	Weisse XXIII, 1242	53.7	6.0	19.3	4 6.33	1	41.820	1 11.70	52.350	h. m. s. ° ′ ″
	Flora - - - -	5.1	18.2	30.8	5 18.03	3	34.090			Weisse XXIII, 1242, 0 0 10.85 —11 57 36.21
	Weisse XXIII, 1242	16.4	29.1	41.7	6 29.06	1	41.812	1 11.67	52.390	Flora—Weisse XXIII, 1242, Δα Δδ
	Flora - - - -	28.1	40.6	53.5	7 40.73	3	34.122			M. T.
	Weisse XXIII, 1242	49.2	2.0	15.0	9 2.06	1	41.821	1 11.04	52.329	h. m. s. m. s. ′ ″
	Flora - - - -	0.4	13.2	25.7	10 13.10	3	34.070			10 7 32.10 + 1 11.36 —13 25.11
										Δt + .19
	Weisse XXIII, 1242	22.1	34.6	47.7	11 34.80	1	41.761	1 11.23	52.440	Δρ .00 — .56
	Flora - - - -	33.2	46.2	58.7	12 46.03	3	34.121			p + .02 + 6.83
	Weisse XXIII, 1242	50.2	2.9	15.2	14 2.76	1	41.771	1 11.14	52.401	
	Flora - - - -	1.5	14.0	26.2	15 13.90	3	34.092			
	Weisse XXIII, 1242	50.0	3.4	15.7	17 3.10	1	41.762	+ 1 11.30	— 52.416	
	Flora - - - -	1.7	14.4	27.1	18 14.40	3	34.098			
. 29	Flora - - - -	3.0	15.0	28.2	10 21 15.40	2	46.440			m. s.
	Weisse XXIII, 1242	2.2	15.0	27.0	22 14.73	2	46.255	— 0 59.33	— 0.185	Corr. Chron. + 0 23.26
	Flora - - - -	10.2	23.1	35.4	26 22.90	2	46.389			α δ
	Weisse XXIII, 1242	9.1	22.0	34.1	27 21.73	2	45.968	0 58.83	0.421	h. m. s. ° ′ ″
	Flora - - - -	51.3	4.2	17.3	30 4.26	2	46.231			Weisse XXIII, 1242, 0 0 10.84 —11 57 36.96
	Weisse XXIII, 1242	51.3	4.1	16.5	31 3.96	2	46.062	0 59.70	— 0.169	Flora—Weisse XXIII, 1242, Δα Δδ
	Flora - - - -	10.9		36.0	33 23.45	2	46.061			M. T.
	Weisse XXIII, 1242	10.3		35.0	34 22.65	2	46.089	— 0 59.20	+ 0.028	h. m. s. m. s. ′ ″
										10 28 9.76 — 0 59.26 — 0 2.86
										Δt — .16
. 31	Flora - - - -	13.2	25.7	38.2	8 57 25.70	2	38.527			Δρ .00 .00
	Weisse XXIII, 1227	6.0	18.1	31.0	58 18.36	2	40.860	— 0 52.66	+ 2.333	p + .12 + 6.54
	Flora - - - -	33.2	45.7	58.0	59 45.63	2	38.448			
	Weisse XXIII, 1227	25.2	38.3	50.5	9 0 38.00	2	40.860	0 52.37	2.412	
	Flora - - - -	29.1	41.3	54.2	1 41.53	2	38.440			m. s.
	Weisse XXIII, 1227	21.3	33.7	46.4	2 33.80	2	40.900	0 52.27	2.460	Corr. Chron. + 0 22.06
	Flora - - - -	16.3	28.2	41.3	3 28.60	2	38.408			α δ
	Weisse XXIII, 1227	8.6	21.4	33.7	4 21.23	2	40.862	0 52.63	2.454	h. m. s. ° ′ ″
										Weisse XXIII, 1227, 23 59 45.31 —11 51 50.62
	Flora - - - -	14.6	27.2	39.3	5 27.03	2	38.400			Flora—Weisse XXIII, 1227, Δα Δδ
	Weisse XXIII, 1227	6.8	19.4	31.6	6 19.26	2	40.904	0 52.23	2.504	M. T.
	Flora - - - -	44.2	57.1	9.5	8 56.93	2	38.386			h. m. s. m. s. ′ ″
	Weisse XXIII, 1227	36.8	49.2	1.9	9 49.30	2	40.895	0 52.37	2.509	9 11 57.18 — 0 52.55 + 0 38.61
										Δt — .14
	Flora - - - -	42.6	55.4	8.1	10 55.36	2	38.388			Δρ .00 + .02
	Weisse XXIII, 1227	35.0	48.1	0.3	11 47.80	2	40.908	0 52.44	2.520	p — .01 + 6.50
	Flora - - - -	6.3	19.2	31.5	12 19.00	2	38.443			
	Weisse XXIII, 1227	58.5	11.2	23.7	13 11.13	2	40.911	0 52.13	2.468	
	Flora - - - -	41.2	54.1	6.8	14 54.03	2	38.410			
	Weisse XXIII, 1227	34.2	46.9	59.5	15 46.86	2	40.905	0 52.83	2.495	
	Flora - - - -	35.0	47.3	0.5	16 47.60	2	38.342			
	Weisse XXIII, 1227	27.6	40.3	52.7	17 40.20	2	40.881	0 52.60	2.539	
	Flora - - - -	25.7	38.3	50.7	18 38.23	2	38.314			
	Weisse XXIII, 1227	18.3	30.9	43.5	19 30.90	2	40.974	0 52.67	2.660	
	Flora - - - -	55.4	8.1	20.7	21 8.06	2	38.383			
	Weisse XXIII, 1227	48.0	0.7	13.4	22 0.70	2	40.962	— 0 52.67	+ 2.579	

(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Oct. 31	Flora - - - -	21.4	34.2	47.1	9 23 34.23	2 38.326		
	Weisse XXIII, 1227	14.2	27.1	39.5	24 26.93	2 40.940	— 0 52.70	+ 2.614
	Flora - - - -	18.3	31.0	43.2	25 30.83	2 38.312		
	Weisse XXIII, 1227	11.3	24.2		26 23.93	2 40.932	— 0 53.10	+ 2.622
Nov. 1	Flora - - - -	3.2	15.7	28.1	8 50 15.66	2 37.243		
	Weisse XXIII, 1227	1.5	14.3	27.1	51 14.30	3 24.400	— 0 58.64	+ 17.069
	Flora - - - -	24.2	37.3	49.7	52 37.06	2 37.339		
	Weisse XXIII, 1227	23.1	36.0	49.1	53 36.06	3 24.340	0 59.00	16.913
	Flora - - - -	0.4	13.4	26.2	55 13.33	2 37.255		
	Weisse XXIII, 1227	59.2	12.4	24.8	56 12.13	3 24.350	0 58.80	17.007
	Flora - - - -	4.7		30.0	58 17.35	2 37.172		
	Weisse XXIII, 1227	3.5	16.1	29.2	59 16.26	3 24.349	0 58.91	17.089
	Flora - - - -	27.2	39.2	52.6	9 0 39.66	2 37.245		
	Weisse XXIII, 1227	25.3	38.6	51.3	1 38.40	3 24.370	0 58.74	17.037
	Flora - - - -	51.3	3.8	16.5	3 3.86	2 37.229		
	Weisse XXIII, 1227	49.7	2.5	15.7	4 2.63	3 24.353	0 58.77	17.036
	Flora - - - -	13.6	26.4	39.2	5 26.40	2 37.090		
	Weisse XXIII, 1227	12.8	25.3	38.2	6 25.43	3 24.329	0 59.03	17.151
	Flora - - - -	25.2	37.5	50.2	8 37.63	2 37.089		
	Weisse XXIII, 1227	23.4	36.2	49.2	9 36.26	3 24.378	0 58.63	17.201
	Flora - - - -	53.6	6.5	19.6	11 6.57	2 37.069		
	Weisse XXIII, 1227	52.5	5.2	17.9	12 5.20	3 34.318	0 58.63	17.161
	Flora - - - -	8.3	21.0	33.0	13 20.76	2 37.164		
	Weisse XXIII, 1227	6.2		32.5	14 19.35	3 24.472	— 0 58.59	+ 17.220
Nov. 2	Weisse XXIII, 1208	49.0	2.0	14.1	9 50 1.70	1 49.960	+ 0 3.50	— 26.108
	Flora - - - -	53.0	5.3	17.3	50 5.20	2 45.901		
	Weisse XXIII, 1208	0.1	13.3	25.0	51 12.80	1 50.049	0 3.17	26.118
	Flora - - - -	3.2	16.0	28.7	51 15.97	2 46.000		
	Weisse XXIII, 1208	44.0	57.0	9.0	53 56.66	1 50.078	0 3.34	26.019
	Flora - - - -	47.3	0.0	12.7	54 0.00	2 45.930		
	Weisse XXIII, 1208	29.7		54.0	55 41.85	1 50.052	0 3.35	26.066
	Flora - - - -	33.0	45.1	57.5	55 45.20	2 45.951		
	Weisse XXIII, 1208	6.4		31.5	57 18.75	1 50.021	0 3.45	26.021
	Flora - - - -	9.6	22.0	35.0	57 22.20	2 45.875		
	Weisse XXIII, 1208	20.8	33.1	46.3	59 33.40	1 50.029	+ 0 3.00	— 26.122
	Flora - - - -	24.2	36.0	49.0	59 36.40	2 45.984		
Nov. 4	Weisse XXIII, 1208	59.0	11.2	24.0	9 25 11.40	2 41.400	+ 0 1.67	+ 8.421
	Flora - - - -	0.5	13.1	25.6	25 13.07	2 32.979		
	Weisse XXIII, 1208	59.0		24.7	26 11.85	2 41.438	0 1.50	8.661
	Flora - - - -	0.7		26.0	26 13.35	2 32.777		
	Weisse XXIII, 1208	19.2	32.0	44.7	28 31.97	2 41.423	0 1.63	8.582
	Flora - - - -	21.3	33.4	46.1	28 33.60	2 32.841		
	Weisse XXIII, 1208	59.0	11.5	24.0	30 11.50	2 41.350	0 1.90	8.705
	Flora - - - -	2.2	12.7	25.3	30 13.40	2 32.645		
	Weisse XXIII, 1208	32.2	43.7	57.0	32 44.30	2 41.312	+ 0 1.53	+ 8.577
	Flora - - - -	33.6	45.2	58.7	32 45.83	2 32.735		

RESULTS.

Corr. Chron. m. s. + 0 21.56

	α h. m. s.	δ ° ′ ″
Weisse XXIII, 1227,	23 59 45.29	—11 51 50.73

Flora—Weisse XXIII, 1227, Δα Δδ

M. T. h. m. s.	m. s.	′ ″
9 2 13.39	— 0 58.77	+ 4 22.64
Δt	— .16	
Δρ	.00	— .18
p	— .03	+ 6.45

Corr. Chron. m. s. + 0 20.71

	α h. m. s.	δ ° ′ ″
Weisse XXIII, 1208,	23 58 39.03	—11 36 34.80

Flora—Weisse XXIII, 1208, Δα Δδ

M. T. h. m. s.	m. s.	′ ″
9 55 1.54	+ 0 3.30	— 6 40.77
Δt	+ .01	
Δρ	.00	— .28
p	+ .09	+ 6.24

(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Nov. 4	Weisse XXIII, 1208	30.2	42.7	54.9	9 34 42.60	2 41.405	+ 0 1.36	+ 8.856	Corr. Chron. + 18.91 s.
	Flora	31.6	44.0	56.2	34 43.96	2 32.549			α δ
	Weisse XXIII, 1208	12.7	25.7	37.8	36 25.40	2 41.269	0 1.07	8.558	h. m. s. ° ′ ″
	Flora	14.2	26.2	39.0	36 26.47	2 32.711			Weisse XXIII, 1208, 23 58 39.01 —11 36 34.98
	Weisse XXIII, 1208	36.5	49.0	1.5	39 49.00	2 41.359	0 1.40	8.902	Flora—Weisse XXIII, 1208, Δ α Δ δ
	Flora	37.8	50.7	3.2	39 50.40	2 32.457			M. T. h. m. s. m. s. ′ ″
	Weisse XXIII, 1208	21.7	34.2	46.2	40 34.03	2 41.215	0 1.34	8.653	9 34 0.36 + 0 1.50 + 2 13.25
	Flora	23.0	35.1	48.0	40 35.37	2 32.562			Δ t .00
									Δ ρ .00 .09
	Weisse XXIII, 1208	5.0	18.2	29.0	42 17.40	2 41.138	+ 0 1.63	+ 8.781	p + .06 + 6.29
	Flora	6.2	19.7	31.2	42 19.03	2 32.357			
Nov. 9	Flora	16.5	29.0	41.5	9 25 29.00	2 46.128			Corr. Chron. + 14.53 s.
	Weisse, 0.13 . .	57.1	9.0	22.0	28 9.36	1 52.995	— 2 40.36	— 23.300	α δ
	Flora	13.0	25.2	38.2	30 25.46	2 46.000			h. m. s. ° ′ ″
	Weisse, 0.13 . .	54.1	6.5	19.3	33 6.63	1 52.931	2 41.17	23.236	Weisse, 0.13. 0 1 53.08 —11 1 7.78
	Flora	44.6	56.8	9.2	34 56.86	2 45.900			Flora—Weisse, 0.13, Δ α Δ δ
	Weisse, 0.13 . .	25.1	37.0	50.2	37 37.43	1 52.955	2 40.57	23.112	M. T. h. m. s. m. s. ′ ″
	Flora	56.3	8.0	21.0	39 8.43	2 45.840			9 41 46.24 — 2 40.73 — 5 54.25
	Weisse, 0.13 . .	37.0	49.7	2.0	41 49.23	1 52.961	2 40.80	23.046	Δ t — .44
	Flora	29.0	41.3	54.5	43 41.60	2 45.873			Δ ρ .00 — .25
	Weisse, 0.13 . .	9.7	22.0	34.3	46 22.00	1 52.976	2 40.40	23.064	p + .10 + 6.23
	Flora	5.7		31.0	48 18.35	2 45.738			
	Weisse, 0.13 . .	46.5	59.2	11.4	50 59.03	1 52.923	2 40.68	22.982	
	Flora	56.0		21.5	53 8.75	2 45.678			
	Weisse, 0.13 . .	37.2	49.5	2.1	55 49.60	1 53.011	2 40.85	22.834	
	Flora	52.8	5.0	18.0	57 5.26	2 45.695			
	Weisse, 0.13 . .	33.6	46.2	59.0	59 46.26	1 53.042	— 2 41.00	— 22.820	
Nov. 13	Weisse XXIII, 1195	30.3	43.2	55.7	8 39 43.06	1 44.869	+ 2 21.54	— 55.182	Corr. Chron. + 12.45 s
	Flora	52.0	4.6	17.2	42 4.60	3 39.971			α δ
	Weisse XXIII, 1195	28.1	40.7	54.1	48 40.96	1 44.809	2 21.60	54.890	h. m. s. ° ′ ″
	Flora	49.7	2.6	15.4	51 2.56	3 39.619			Weisse XXIII, 1195, 23 57 52.04 —10 26 46.99
	Weisse XXIII, 1195	21.4	33.9	46.6	52 33.96	1 44.742	2 21.77	54.897	Flora—Weisse XXIII, 1195, Δ α Δ δ
	Flora	43.1	55.7	8.4	54 55.73	3 39.559			M. T. h m. s. m. s. ′ ″
	Weisse XXIII, 1195	32.3	44.5	57.2	56 44.66	1 44.772	2 21.97	54.781	8 56 27.25 + 2 21.77 —14 3.21
	Flora	54.1	6.4	19.4	59 6.63	3 39.473			Δ t .39
									Δ ρ .00 — .57
	Weisse XXIII, 1195	19.2	32.3	44.7	9 0 32.06	1 44.661	2 21.54	54.758	p + .05 + 5.87
	Flora	41.3	53.7	6.8	2 53.60	3 39.339			
	Weisse XXIII, 1195	51.0	3.5	16.0	5 3.50	1 44.480	+ 2 22.20	— 54.670	Corr. Chron. + 12.21 s.
	Flora	13.1	25.7	38.3	7 25.70	3 39.070			α δ
Nov. 14	Weisse XXIII, 1195	49.5	2.0	15.0	8 18 2.16	1 45.336	+ 2 41.50	— 27.402	h. m. s. ° ′ ″
	Flora		44.0	56.0	20 43.66	2 42.571			Weisse XXIII, 1195, 23 57 52.03 —10 26 47.08
	Weisse XXIII, 1195	23.2	35.7	48.5	22 35.80	1 45.360	2 42.40	27.290	Flora—Weisse XXIII, 1195, Δ α Δ δ
	Flora	5.6	18.3	30.7	25 18.20	2 42.483			M. T. h. m. s. m. s. ′ ″
	Weisse XXIII, 1195	21.8	34.1	47.0	27 34.30	1 45.250	2 42.20	27.315	8 33 57.07 + 2 42.46 — 6 57.27
	Flora	4.1	16.4	29.0	30 16.50	2 42.398			Δ t .44
									Δ ρ .00 — .28
	Weisse XXIII, 1195	40.9	53.7	6.2	8 34 53.60	1 45.398	+ 2 42.10	— 27.109	p + .02 + 5.83
	Flora	23.1	35.7	48.3	37 35.70	2 42.240			(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet.—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Nov. 14	Weisse XXIII, 1195	48.6	0.9	13.2	8 39 0.90	1 45.458	+ 2 42.10	— 26.923	
	Flora	30.3	43.0	55.7	41 43.00	2 42.214			
	Weisse XXIII, 1195	51 2	9.5	22.2	43 7.63	1 45.555	+ 2 44.47	— 26.852	
	Flora	39.7	51.9	4.7	46 52.10	2 42.240			
Nov. 18	Flora	14.2	26.5	39.3	8 26 26.67	2 46.605			
	Weisse, 0.41 . .	48.5	0.7	13.2	27 0.80	3 34.310	— 0 34.13	+ 17.617	Corr. Chron. s. + 10.45
	Flora	0.2	13.0	25.3	28 12.83	2 46.399			α δ
	Weisse, 0.41 . .	34.0	47.0	59.2	28 46.73	3 34.312	0 33.90	17.825	h. m. s. ° ′ ″
	Flora	38.0	50.6	3.6	33 50.73	2 46.302			Weisse, 0.41, 0 2 51.75 —10 7 19.30
	Weisse, 0.41 . .	12.4	24.8	37.2	34 24.80	3 34.192	0 34.07	17.802	Flora — Weisse, 0.41, Δα Δδ
	Flora	28.2	40.6	53.0	35 40.60	2 46.191			M. T.
	Weisse, 0.41 . .	1.9	14.6	27.6	36 14.70	3 34.148	0 34.10	17.869	h. m. s. m. s. ′ ″
	Flora	16.4	29.0	41.5	38 28.96	2 46.092			8 39 20.73 — 0 33.83 + 4 35.96
	Weisse, 0.41 . .	49.3	2.6	15.4	39 2.46	3 34.155	0 33.50	17.975	Δt — .09
									Δρ .00 + .16
	Flora	31.5	44.4	57.0	40 44.30	2 46.078			p + .05 + 5.59
	Weisse, 0.41 . .	5.7	18.0	30.9	41 18.20	3 34.145	0 33.90	17.979	
	Flora	40.4	53.0	5.7	44 53.03	2 46.035			
	Weisse, 0.41 . .	14.2	27.0	39.6	44 26.93	3 34.166	0 33.90	18.043	
	Flora	32.9	45.2	58.0	45 45.36	2 46.030			
	Weisse, 0.41 . .	6.2	19.2	31.7	46 19.03	3 34.220	0 33.67	18.102	
	Flora	41.0	53.4	5.7	47 53.37	2 45.922			
	Weisse, 0.41 . .	14.2	26.9	39.7	48 26.96	3 34.160	0 33.59	18.150	
	Flora	34.2	47.2	59.6	49.47.00	2 45.884			
	Weisse, 0.41 . .	8.3	20.4	33.0	50 20.56	3 34.162	— 0 33.56	+ 18.190	
Nov. 21	Weisse, 0.28 . .	49.2	1.5	14.0	9 49 1.56	3 26.205	+ 1 30.67	+ 44.674	Corr. Chron. s. + 9.13
	Flora	19.7	32.0	45.0	50 32.23	1 41.611			α δ
	Weisse, 0.28 . .	53.5	5.7	18.9	52 6.03	3 26.225	1 30.67	44.737	h. m. s. ° ′ ″
	Flora	24.0	37.1	49.0	53 36.70	1 41.568			Weisse, 0.28, 0 2 25.48 — 9 48 21.82
	Weisse, 0.28 . .	56.8	9.1	21.8	55 9.23	3 26.261	+ 1 30.34	+ 44.869	Flora — Weisse, 0.28, Δα Δδ
	Flora	27.2	39.5	52.0	56 39.57	1 41.472			M. T.
									h. m. s. m. s. ′ ″
									9 53 45.30 + 1 30.56 +11 43.95
									Δt .25
									Δρ .01 .52
									p + .19 + 5.32
Nov. 30	Flora	53 0	5.0	17.6	8 51 5.20	3 33.182			
	Weisse, 0.199 . .	32.0	44.1	57.3	52 44.46	2 30.951	— 1 39.26	— 32.143	
	Flora	57.7	9.5	22.2	54 9.80	3 33.090			Corr. Chron. s. + 3.65
	Weisse, 0.199 . .	37.0	49.3	2.0	55 49.33	2 30.871	1 39.53	32.131	α δ
	Flora	16.0	28.0	40.7	57 28.23	3 33.115			h. m. s. ° ′ ″
	Weisse, 0.199 . .	55.2	7.3	20.0	59 7.50	2 30.910	1 39.27	32.117	Weisse, 0.199, 0 11 59.24 — 8 2 54.40
	Flora	44.0	56.3	9.2	9 0 56.50	3 33.009			Flora — Weisse, 0.199, Δα Δδ
	Weisse, 0.199 . .	24.0	36.5	48.8	2 36.43	2 30.910	1 39.93	32.011	M. T.
	Flora	26.3	38.2	51.0	4 38.50	3 32.940			h. m. s. m. s ′ ″
	Weisse, 0.199 . .	5.2	17.3	29.7	6 17.40	2 30.979	1 38.90	31.873	9 7 26.66 — 1 39.06 — 8 9.22
	Flora	31.3	43.5	56.0	7 43.60	3 32.845			Δt — .28
	Weisse, 0.199 . .	10.3	22.5	35.0	9 22.60	2 30.930	1 39.00	31.827	Δρ + .01 — .32
									p + .14 + 4.89
	Flora	11.0	23.3	35.9	11 23.40	3 32.840			
	Weisse, 0.199 . .	49.8	2.5	14.7	9 13 2.33	2 31.010	— 1 38.93	— 31.742	

(Continued.)

FLORA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
v. 30	Flora	27.6	40.0	52.0	9 15 39.86	3 32.820		
	Weisse, 0.199 . .	6.2	18.4	30.9	17 18.50	2 31.060	— 1 38.64	— 31.672
	Flora	32.0	44.3	57.1	18 44.46	3 32.698		
	Weisse, 0.199 . .	11.3	23.2	36.0	20 23.50	2 31.039	1 39.04	31.571
	Flora	48.3		12.9	22 0.60	3 32.679		
	Weisse, 0.199 . .	26.2	39.0	51.0	23 38.73	2 31.295	— 1 38.13	— 31.296
c. 21	Flora	11.0	23.6	36.0	8 0 23.53	3 39.758		
	Weisse, 0.601 . .	38.0	50.0	3.2	1 50.40	1 40.679	— 1 26.87	— 59.159
	Flora	6.2	18.7	31.2	3 18.70	3 39.619		
	Weisse, 0.601 . .	32.7	45.0	57.8	4 45.16	1 40.798	1 26.46	58.901
	Flora	44.6	57.0	9.6	5 57.06	3 39.491		
	Weisse, 0.601 . .	11.0	23.5	35.7	7 23.40	1 40.754	1 26.34	58.817
	Flora	23.2	35.0	48.1	9 35.43	3 39.425		
	Weisse, 0.601 . .	49.0	1.5	14.0	11 1.50	1 41.718	1 26.07	58.787
	Flora	57.0	9.0	21.5	12 9.16	3 39.410		
	Weisse, 0.601 . .	23.1	35.7	48.0	13 35.60	1 40.853	1 26.44	58.637
	Flora	21.6	33.5	46.0	16 33.70	3 39.270		
	Weisse, 0.601 . .	47.4	59.7	12.3	17 59.80	1 40.749	1 26.10	58.601
	Flora	17.4	29.8	42.0	19 29.73	3 39.161		
	Weisse, 0.601 . .	43.1	55.0	7.9	20 55.33	1 40.704	1 25.60	58.537
	Flora	4.7	17.2	29.1	23 17.00	3 39.149		
	Weisse, 0.601 . .	30.3	42.7	55.0	24 42.66	1 40.860	1 25.66	58.369
	Flora	39.1	50.0	4.0	25 51.03	3 39.151		
	Weisse, 0.601 . .	4.3	17.1	29.3	27 16.90	1 40.997	1 25.87	58.234
	Flora	30.0	42.0	53.0	28 41.66	3 39.012		
	Weisse, 0.601 . .	55.6	7.8	20.3	30 7.90	1 40.969	1 26.24	58.123
	Flora	39.0	51.7	4.0	32 51.56	3 38.840		
	Weisse, 0.601 . .	4.0	16.0	29.1	34 16.36	1 40.940	1 24.80	57.980
	Flora	27.3	39.5	52.0	35 39.60	3 38.683		
	Weisse, 0.601 . .	52.7	5.1	17.9	8 37 5.23	1 40.909	— 1 25.63	— 57.854

RESULTS.

Corr. Chron. + 5.89 s.

	α h. m. s.	δ ° ′ ″
Weisse, 0.601,	0 34 31.39	— 3 52 15.92

Flora — Weisse, 0.601,	Δ α m. s.	Δ δ ′ ″
M. T. h. m. s.		
8 17 54.91	— 1 26.01	— 9 27.02
Δt	— .23	
Δρ	.00	— .30
p	+ .05	+ 3.95

COMET 1850, II.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850. Sept. 16	Comet 1850, II.	50.2	6.0	22.0	0 59 6.40	3 42.020		
	B. Z, 452, 77			58.0	59 41.85	2 41.455	— 0 35.45	— 30.732
	Comet 1850, II.	10.5	26.0		1 1 26.00	3 42.975		
	B. Z, 452, 77		1.0	26.2	2 1.00	2 41.720	0 35.00	31.422
	Comet 1850, II.	25.2	41.0		3 41.00	3 43.519		
	B. Z, 452, 77		14.0	29.7	4 14.00	2 41.790	0 33.00	31.896
	Comet 1850, II.	46.2	2.0		5 2.00	3 44.569		
	B. Z., 452, 77		33.2	49.2	5 33.20	2 42.030	0 31.20	32.706
	Comet 1850, II.	55.5	11.0		7 11.00	3 45.640		
	B. Z., 452, 77		41.5	57.2	7 41.50	2 42.132	0 30.50	33.675
	Comet 1850, II.	26.0	42.0		11 42.00	3 47.532		
	B. Z., 452, 77			25.2	12 9.50	2 42.300	0 27.50	35.399
	Comet 1850, II.	15.2	31.5		13 31.50	3 48.232		
	B. Z, 452, 77		58.2	15.2	13 58.20	2 42.450	0 26.70	35.949
	Comet 1850, II.	29.5	46.0		18 46.00	2 47.879		
	B. Z, 452, 77		9.0	25.0	19 9.00	1 40.190	0 23.00	37.856
	Comet 1850, II.	4.2	19.5		21 19.50	2 49.190		
	B. Z., 452, 77		42.0	59.2	21 42.00	1 40.225	0 22.50	39.132
	Comet 1850, II.	24.2	39.2		23 39.20	2 50.300		
	B. Z., 452, 77		1.5	17.9	24 1.50	1 40.329	0 22.30	40.138
	Comet 1850, II.	38.2	54.2		25 54.20	2 51.230		
	B. Z., 452, 77			31.0	26 15.30	1 40.440	0 21.10	40.957
	Comet 1850, II.	38.0	53.5		27 53.50	2 51.945		
	B. Z., 452, 77			28.5	28 12.80	1 40.520	0 19.30	41.592
	Comet 1850, II.	48.2	3.5		30 3.50	2 52.728		
	B. Z., 452, 77			38.0	30 22.30	1 40.709	0 18.80	42.186
	Comet 1850, II.	50.3	6.2		32 6.20	2 54.122		
	B. Z., 452, 77			39.2	32 23.50	1 40.595	— 0 17.30	— 43.694
Sept. 17	Comet 1850, II.	47.0	2.0		1 15 2.00	1 36.539		
	B. Z., 451, 60		37.0	52.0	15 37.00	3 34.800	— 0 35.00	+ 58.341
	Comet 1850, II.	57.2	12.0	28.0	17 12.00	1 37.420		
	B. Z., 451, 60			1.0	17 45.00	3 35.250	0 33.00	57.910
	Comet 1850, II.	10.5	25.2		19 25.00	1 39.135		
	B. Z., 451, 60			10.0	19 54.30	3 35.387	0 29.30	56.332
	Comet 1850, II.	45.2	59.7		22 59.70	1 40.510		
	B. Z., 451, 60		29.7	45.0	23 29.70	3 35.412	0 30.00	54.982
	Comet 1850, II.	58.5	14.0		25 14.00	1 42.180		
	B. Z, 451, 60		42.0	57.0	25 42.00	3 35.815	6 28.00	53.715
	Comet 1850, II.	2.2	18.2		30 18.20	1 44.470		
	B. Z., 451, 60		45.0	0.0	30 45.00	3 35.920	— 0 26.80	+ 51.530
Oct. 4	Comet 1850, II.	32.0	45.0	57.5	5 33 44.83	2 43.705		
	Weisse X, 224	51.8	4.2	17.0	36 4.33	2 31.925	— 2 19.50	— 11.780
	Weisse X, 229	14.0			36 26.44	2 39.945	2 41.61	3.760
	Comet 1850, II.	3.5	16.5	28.5	39 16.17	2 45.610		
	Weisse X, 224	23.0	35.0	48.0	41 35.33	2 32.745	2 19.16	12.865
	Weisse X, 229			10.0	5 41 57.33	2 40.511	+ 2 41.16	— 5.099

RESULTS.

Corr. Chron. m. s. + 3 19.18

	α h. m. s.	δ ° ′ ″
B Z., 452, 77,	7 45 48.77	+39 40 18.01

Comet — B. Z., 452, 77,		Δ α m. s.	Δ δ ′ ″
Sid. T.	1 19 7.89	— 0 25.97	— 9 27.93
	Δρ	+ .02	— .56
	ρ	— 1.39	+ 11.45

Corr. Chron. m. s. + 3 22.01

	α h. m. s.	δ ° ′ ″
B Z., 451, 60,	7 58 1.27	+36 40 0.20

Comet — B. Z., 451, 60,		Δ α m. s.	Δ δ ′ ″
Sid. T.	1 25 3.83	— 0 30.35	+14 12.52
	Δρ	.06	1.06
	ρ	— 1.36	+ 12.02

(Continued.)

COMET 1850, II.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet—Star. Δ α	Δ mic.
850.		s.	s	s.	h. m. s.	w. revs.	m. s.	revs.
. 4	Comet 1850, II.	13.5	25.3	38.2	5 45 25.67	2 48.045		
	Weisse X, 224	31.0	43.0	57.0	47 43.67	2 33.100	— 2 18.00	— 14.945
	Weisse X, 229	54.0		18.0	48 6.00	2 41.327	2 40.33	6.718
	Comet 1850, II.	22.5	35.1	47.2	49 34.93	2 49.356		
	Weisse X, 224	39.2	51.9	4.5	51 51.87	2 33.532	2 16.94	15.824
	Weisse X, 229	2.0			52 14.67	2 41.555	2 39.74	7.801
	Comet 1850, II.	49.0	2.2	14.6	55 1.93	2 51.309		
	Weisse X, 224		17.5	29.5	57 17.03	2 33.880	2 15.10	17.429
	Weisse X, 229	27.0		52.0	57 39.50	2 42.028	2 37.57	9.281
	Comet 1850, II.	39.7	52.5	4.7	59 52.30	2 53.932		
	Weisse X, 224	54.2	7.0		6 2 6.80	2 34.025	2 14.50	19.907
	Weisse X, 229	17.0	29.0	41.0	2 29.00	2 42.173	2 36.70	11.759
	Comet 1850, II.	53.5	6.1	18.2	4 5.93	2 54.078		
	Weisse X, 224	6.0	19.2	31.0	6 18.73	2 34.430	2 12.80	19.648
	Weisse X, 229	28.5	41.2	54.1	6 41.27	2 42.408	— 2 35.34	— 11.670
t. 6	(° 26)	29.2	42.0	54.0	5 50 41.73	2 26.215	+ 0 16.10	— 31.466
	Comet 1850, II.	45.7	58.1	9.7	50 57.83	3 27.769		
	(° 26)	38.2	50.0	3.0	52 50.40	2 26.422	0 16.67	32.780
	Comet 1850, II.	54.2	7.5	19.5	53 7.07	3 29.290		
	(° 26)	25.2	37.2	49.6	54 37.33	2 26.571	0 17.90	33.101
	Comet 1850, II.	43.0	55.2	7.5	54 55.23	3 29.760		
	(° 26)	52.0	4.5	16.5	56 4.33	2 26.770	0 17.20	33.301
	Comet 1850, II.	9.5	21.5	33.8	56 21.53	3 30.159		
	(° 26)	46.2	58.4	10.7	58 58.43	2 27.070	0 18.27	33.828
	Comet 1850, II.	4.2	16.8	29.1	59 16.70	3 30.986		
	(° 26)	32.2	44.1	56.8	6 0 44.37	2 27.450	0 18.79	33.915
	Comet 1850, II.	50.8	3.0	15.7	1 3.16	3 31.453		
	(° 26)	24.2	36.3	48.9	2 36.47	2 27.349	0 18.76	34.633
	Comet 1850, II.	43.0	55.2	7.5	2 55.23	3 32.070		
	(° 26)	57.2	9.0	21.3	5 9.16	2 27.632	0 19.57	35.238
	Comet 1850, II.	16.7	28.5	41.0	5 28.73	3 32.958		
	(° 26)	12.4	25.0		7 24.85	2 27.734	0 20.05	35.869
	Comet 1850, II.	32.5	45.0	57.2	7 44.90	3 33.691		
	(° 26)	7.9	19.7		9 19.73	2 28.265	0 20.40	36.017
	Comet 1850, II.	28.2	40.2	52.0	9 40.13	3 34.370		
	(° 26)	1.4	14.0		11 14.10	2 28.187	0 20.60	36.826
	Comet 1850, II.	22.0	34.6	47.5	11 34.70	3 35.101		
	(° 26)	50.2	3.0		14 2.77	2 28.353	+ 0 21.90	— 37.144
	Comet 1850, II.	12.0	25.0	37.0	14 24.67	3 35.585		
t. 7	Comet 1850, II.	57.2	10.2	23.0	5 40 10.13	2 33.482		
	143, Lamont's Zones		49.1	1.0	40 48.58	3 36.975	— 0 38.45	+ 33.405
	Comet 1850, II.	46.3	58.7	11.5	44 58.83	2 35.600		
	143, Lamont's Zones		34.9	47.0	45 34.68	3 38.111	0 35.85	32.423
	Comet 1850, II.		28.5	41.5	49 28.65	2 37.900		
	143, Lamont's Zones		5.0	17.5	50 4.90	3 39.225	0 36.25	31.237
	Comet 1850, II.	19.2	31.5	44.0	53 31.57	2 39.365		
	143, Lamont's Zones		7.0	19.5	5 54 7.10	3 40.150	— 0 35.53	+ 30.697

RESULTS.

Corr. Chron. — 0 m. 36.98 s.

	α h. m. s.	δ ° ′ ″
Weisse X, 224,	10 13 12.65	— 4 37 48.12
Weisse X, 229,	10 13 35.42	4 39 49.20

Comet—Weisse X, 224,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	5 48 57.57	— 2 16.57	— 4 6.79
	Δ ρ	+ .03	— .46
	p	— .61	+ 10.09

Comet — Weisse X, 229.

	h. m. s.	m. s.	′ ″
Sid. T.	5 48 57.57	— 2 38.92	— 2 3.15
	Δ ρ	.01	— .23
	p	— .61	+ 10.10

Corr. Chron. — 26.99 s.

	α h. m.	δ ° ′
(° 26)	10 20,9	— 7 40,

Comet — (° 26)

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	6 1 50.50	+ 0 18.85	— 8 50.40
	Δ ρ	+ .08	— 1.18
	p	— .69	+ 9.65

Corr. Chron. — 22.53 s.

	α h. m. s.	δ ° ′ ″
143, Lamont's Zones,	10 26 51.14	— 9 7 14.92

Comet—143, Lamont's Zones,

	h m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	6 49 33.08	— 0 36.02	+ 8 4.34
	Δ ρ	+ .03	.65
	p	— .61	+ 9.64

COMET 1850, II.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet—Star. Δ a	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Oct. 7	Comet 1850, II.	41.2	53.9	6.5	6 1 53.87	2 42.110		
	143, Lamont's Zones		28.0	40.4	2 27.87	3 41.220	— 0 34.00	+ 29.802
Oct. 8	Weisse X, 538	41.6	54.0	7.0	6 4 54.20	2 53.510	+ 1 12.70	+ 4.812
	Weisse X, 548			27.0	5 14.70	2 54.880	0 52.20	6.182
	Comet 1850, II.	54.2	7.0	19.5	6 6.90	2 48.698		
	Weisse X, 533	14.2	26.5	38.5	7 26.40	2 53.741	1 14.30	4.382
	Weisse X, 548			59.5	7 47.20	2 55.111	0 53.50	5.752
	Comet 1850, II.	28.5	40.4	53.2	8 40.70	2 49.359		
	Weisse X, 538	47.0	59.7	12.5	9 59.73	2 54.127	1 15.10	3.526
	Weisse X, 548	8.0	20.5	33.1	10 20.53	2 55.310	0 54.30	4.709
	Comet 1850, II.	2.0	15.0	27.5	11 14.83	2 50.601		
	Weisse X, 538	58.5	11.0	24.2	13 11.23	2 54.620	1 15.57	3.170
	Weisse X, 548			43.8	13 31.50	2 55.751	0 55.30	4.301
	Comet 1850, II.	14.2	26.7	39.5	14 26.80	2 51.450		
	Weisse X, 538	21.0	34.0	47.0	15 34.00	2 54.821	1 16.26	2.516
	Weisse X, 548	42.0		7.0	15 54.50	2 56.134	0 55.76	3.829
	Comet 1850, II.	38.0	50.3	2.5	16 50.26	2 52.305		
	Weisse X, 538	58.3	11.0	23.2	19 10.83	2 55.130	1 16.17	2.010
	Weisse X, 548	18.5		43.2	19 30.85	2 56.545	0 56.15	3.425
	Comet 1850, II.	14.2	27.3	39.5	20 27.00	2 53.120		
	Weisse X, 538	53.0	5.2	18.0	21 5.40	2 55.312	1 16.27	1.493
	Weisse X, 548	13.0		38.2	21 25.60	2 56.620	+ 0 56.07	+ 2.801
	Comet 1850, II.	9.0	22.0	34.0	22 21.67	2 53.819		
Oct. 9	(° 27)	58.3	11.0	23.5	6 16 10.93	2 35.475	+ 2 31.54	+ 1.405
	Comet 1850, II.	30.2	42.2	55.0	18 42.47	2 34.070		
	(° 27)	34.0	46.2	59.0	19 46.40	2 35.849	2 32.43	+ 0.649
	Comet 1850, II.	6.0	19.0	31.5	22 18.83	2 35.200		
	(° 27)	14.2	27.2	39.5	23 26.96	2 36.200	+ 2 32.15	— 0.160
	Comet 1850, II.		59.0	12.0	25 59.11	2 36.360		
Oct. 12	Weisse X, 879	13.0		39.0	17 14 26.00	2 20.510	+ 2 12.33	+ 14.387
	Comet 1850, II.	26.0	38.0	51.0	16 38.33	1 36.290		
	Weisse X, 879	32.0	45.0	57.5	17 17 44.83	2 20.550	+ 2 12.84	+ 13.062
	Comet 1850, II.	45.0	58.0	10.0	19 57.67	1 37.655		

RESULTS.

Corr. Chron. — 18.03 s.

	a (h. m. s.)	δ (° ′ ″)
Weisse X, 538,	10 29 58.36	—10 16 1.57
Weisse X, 548,	10 30 18.56	10 16 20.03

Comet—Weisse X, 538,

		Δ a (m. s.)	Δ δ (′ ″)
Sid. T.	6 16 23.33	+ 1 15.19	+ 0 48.09
	Δ ρ	— .01	.12
	p	— .64	+ 8.30

Comet — Weisse X, 548

Sid. T.	6 16 23.33	+ 0 54.75	+ 1 8.06
	Δ ρ	— .01	.17
	p	— .64	+ 8.30

Corr. Chron. — 13.73 s.

	a (h. m, s.)	δ (° ′ ″)
(° 27)	10 33 31.69	—11 25 1.56

Comet — (° 27)

		Δa (m. s.)	Δ δ (′ ″)
Sid. T.	6 22 6.41	+ 2 32.04	+ 0 9.70
	Δ ρ	— .00	.03
	p	— .62	+ 8.98

Corr. Chron +44.09 s.

	a (h. m. s.)	δ (° ′ ″)
Weisse X, 879,	10 48 3.37	—14 28 19.95

Comet—Weisse X, 879,

	M. T. (h m. s.)	Δ a (m. s.)	Δ δ (′ ″)
	17 18 52.09	+ 2 12.58	+ 3 30.93
	Δ t	+ .36	
	Δ ρ	— .04	.67
	p	— .55	+ 8.37

VICTORIA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
50.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
28	Victoria	33.0	45.0	57.5	9 55 45.16	2 39.950		
	(° 28)	17.9	29.5	42.0	57 29.80	1 48.910	— 1 44.64	— 21.207
	Victoria	33.0	45.0	58.2	58 45.40	2 40.345		
	(° 28)		30.0	42.0	10 0 29.80	1 48.460	1 44.40	22.052
	Victoria	51.2	3.5	16.0	1 3.56	2 40.092		
	(° 28)		48.0	0.5	3 48.06	1 48.951	1 44.50	21.308
	Victoria	40.1	52.3	4.7	5 52.37	2 40.471		
	(° 28)	24.3	37.1	49.1	7 36.83	1 48.482	1 44.46	22.156
	Victoria	10.3	22.0	34.7	9 22.33	2 40.678		
	(° 28)	53.9	7.0	19.2	11 6.70	1 48.022	1 44.37	22.823
	Victoria	43.7	56.0	8.5	12 56.07	2 41.052		
	(° 28)	27.5		52.0	14 39.75	1 48.910	1 43.68	22.309
	Victoria	7.5	19.5	32.0	18 19.67	2 40.680		
	(° 28)	52.0	4.6	17.0	20 4.53	1 48.170	1 44.86	22.677
	Victoria	22.0	34.0	46.7	25 34.23	2 40.761		
	(° 28)	6.0	18.2	31.0	27 18.40	1 48.013	1 44.17	22.915
	Victoria	20.0		45.0	28 32.50	2 41.010		
	(° 28)	5.2	17.0	30.0	30 17.40	1 48.250	— 1 44.90	+ 22.927
29	Victoria	36.0	48.1	1.2	8 21 48.43	2 40.580		
	1636, Santini		59.0	12.0	22 59.28	3 61.400	— 1 10.85	+ 50.732
	Victoria	44.2	56.8	9.7	34 56.90	2 17.810		
	1636, Santini	55.2	8.0	20.0	36 7.73	3 38.322	1 10.83	50.424
	Victoria	57.0		22.0	38 9.50	2 17.890		
	1636, Santini	8.2	19.8	33.0	39 20.33	3 38.502	1 10.83	50.524
	Victoria	7.9	20.0	33.4	41 20.43	2 17.883		
	1636, Santini	19.3	31.0	43.8	42 31.37	3 38.530	1 10.94	50.559
	Victoria	3.7	15.7	28.2	43 15.87	2 18.013		
	1636, Santini	53.5		18.7	45 6.10	3 38.590	1 10.23	50.489
	Victoria	15.2	28.0	40.3	47 27.83	2 17.879		
	1636, Santini		39.2	51.3	48 38.93	3 38.358	1 11.10	50.391
	Victoria	56.7	9.0	21.7	50 9.13	2 18.022		
	1636, Santini	7.9	20.2	32.5	51 20.20	3 38.471	1 11.07	50.361
	Victoria	20.3	32.6	45.2	53 32.70	2 18.119		
	1636, Santini	31.3	43.0	56.0	54 43.43	3 38.288	1 10.73	50.081
	Victoria	5.0	17.0	30.2	56 17.40	2 18.219		
	1636, Santini	15.6	28.2	41.2	57 28.33	3 38.440	1 10.93	50.133
	Victoria	41.0	53.0	6.0	58 53.53	2 18.272		
	1636, Santini	51.9	4.0	17.0	9 0 4.30	3 38.370	1 10.77	+ 50.010
	Victoria	45.9	58.6	11.0	10 58.50	3 31.176		
	(° 28)	22.1	34.1	47.0	12 34.40	2 11.065	1 35.90	— 50.023
	Victoria	15.1	27.3	40.0	14 27.47	3 31.225		
	(° 28)	51.0	3.2	16.0	16 3.40	2 11.007	1 35.93	50.130
	Victoria	46.2	59.1	11.5	17 58.93	3 31.352		
	(° 28)	22.3	35.0	47.0	19 34.77	2 11.139	1 35.84	50.125
	Victoria	30.2	43.2	55.1	21 42.83	3 31.466		
	(° 28)	6.5	19.3	31.5	9 23 19.10	2 11.095	— 1 36.27	— 50.283

RESULTS.

Corr. Chron. + 22.84 s.

	α h. m. s.	δ ° ′ ″
(° 28)	23 25 3.31	+ 6 41 33.28

Victoria — (° 28)

M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
10 11 4.09	— 1 44.44	— 5 42.19
	Δt — .28	
	Δρ .00	— .14
	p + .12	+ 3.78

Corr. Chron. + 23.50 s.

	α h. m. s.	δ ° ′ ″
1636, Santini,	23 24 37.68	+ 6 15 54.47
(° 28)	23 25 3.30	6 41 33.28

Victoria — 1636, Santini,

M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
8 44 58.67	— 1 10.83	+12 54.15
	Δt .19	
	Δρ .00	.30
	p — .01	+ 3.73

Victoria — (°28)

M. T. h. m. s.	m. s.	′ ″
9 16 40.43	— 1 35.98	—12 51.19
	Δt — .27	
	Δρ .00	— .31
	p + .04	+ 3.71

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Oct. 30	Victoria	12.2	24.1	37.1	7 23 24.47	2 36.111		
	1636, Santini . .		12.7	25.3	24 12.87	2 32.528	— 0 48.4[illegible]	— 3.583
	Victoria	3.1	16.0	28.3	25 15.80	2 36.129		
	1636, Santini . .	52.5	4.2	17.3	26 4.67	2 32.501	0 48.87	3.628
	Victoria	31.7	44.2	56.4	27 44.10	2 36.199		
	1636, Santini . .	20.6	32.5	45.5	28 32.87	2 32.506	0 48.77	3.693
	Victoria	57.2	9.5	22.4	30 9.70	2 36.178		
	1636, Santini . .	45.2	58.1	10.2	30 57.83	2 32.491	0 48.13	3.687
	Victoria	57.0	9.0	21.9	32 9.30	2 36.298		
	1636, Santini . .	45.0	57.9	9.7	32 57.53	2 32.620	0 48.23	3.678
	Victoria	54.2	6.0	19.0	34 6.40	2 36.335		
	1636, Santini . .	42.3	54.3	7.0	34 54.53	2 32.568	0 48.13	3.767
	Victoria	5.9		31.5	39 18.70	2 36.406		
	1636, Santini . .	54.3	7.1	19.1	40 6.83	2 32.555	0 48.13	3.851
	Victoria	20.8	33.2	45.5	41 33.17	2 36.442		
	1636, Santini . .	8.5	20.8	33.5	42 20.93	2 32.606	0 47.76	3.836
	Victoria	52.4	4.7	17.1	44 4.73	2 36.556		
	1636, Santini . .	40.5	53.3	5.5	44 53.10	2 32.581	0 48.37	3.975
	Victoria	54.1	6.3	19.1	45 6 50	2 36.588		
	1636, Santini . .	42.3	54.2	7.2	45 54.57	2 32.642	0 48.07	3.946
	Victoria	45.3	57.5	10.3	47 57.70	2 36.600		
	1636, Santini . .	33.6	45.8	58.1	48 45.83	2 32.540	0 48.13	4.060
	Victoria	19.7	32.2	45.1	50 32.33	2 36.596		
	1636, Santini . .	8.4	20.4	33.2	51 20.66	2 32.551	0 48.33	4.045
	Victoria	30.9	43.1	56.2	52 43.40	2 36.688		
	1636, Santini . .	19.3	31.7	44.5	53 31.83	2 32.576	0 48.43	4.112
	Victoria	0.7	12.2	25.0	55 12.63	2 36.729		
	1636, Santini . .	48.0	1.0	13.7	56 0.90	2 32.593	— 0 48.27	— 4.136
Oct. 31	Victoria	11.5		36.3	10 9 23.90	2 36.546		
	1636, Santini . .		11.0	23.6	10 11.00	2 29.910	— 0 47.10	— 6.636
	Victoria	31.2	43.2	55.7	11 43.37	2 36.550		
	1636, Santini . .	18.2	29.6	42.5	12 30.10	2 29.999	0 46.73	6.551
	Victoria	57.3	9.5	21.8	14 9.53	2 36.620		
	1636, Santini . .	44.2	56.7	9.3	14 56.73	2 29.851	0 47.20	6.769
	Victoria	9.3	21.0	34.2	16 21.50	2 36.665		
	1636, Santini . .		8.0	20.6	17 8.20	2 29.965	— 0 46.70	— 6.700
Nov. 1	Victoria	14.8	27.1	39.5	7 20 27.13	3 27.751		
	1636, Santini . .			14.0	21 0.63	2 27.801	— 0 33.50	— 29.862
	Victoria	13.0	25.5		22 35.53	3 27.822		
	1636, Santini . .	47.3	59.0	12.0	22 59.43	2 27.847	0 33.90	29.887
	Victoria	33.5	46.1	58.0	24 25.86	3 27.881		
	1636, Santini . .	7.2	19.4	32.5	25 19.70	2 27.841	0 33.84	29.953
	Victoria	54.2		19.5	26 6.85	3 27.879		
	1636, Santini . .	27.9	41.0	53.5	26 40.80	2 27.867	0 33.95	29.924
	Victoria	31.2	43.2	55.7	28 43.30	3 27.921		
	1636, Santini . .	4.9	17.2	29.8	7 29 17.30	2 27.775	— 0 34.00	— 30.058

RESULTS.

Corr. Chron. + 22.17 s.

	α h. m. s.	δ ° ′ ″
1636, Santini,	23 24 37.65	+ 6 15 54.46

Victoria — 1636, Santini,

M. T. h. m. s.	Δα m. s.	Δδ ′ ″
7 39 36.38	— 0 48.29	— 0 59.28
	Δt .13	
	Δρ .00	+ .02
	p — .01	+ 3.59
h. m. s.	m. s.	′ ″
10 13 16.74	— 0 46.92	— 1 42.18
	Δt — .13	
	Δρ .00	— .04
	p + .12	+ 3.70

(Continued.)

VICTORIA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	m. s.
v. 1	Victoria - - - -	2.3	14.0	27.3	7 30 14.53	3 27.908		
	1636, Santini - - -		48.4	1.2	31 48.68	2 27.845	— 0 34.15	— 29.975
	Victoria - - - -	46.1	58.0	10.9	32 58.33	3 27.951		
	1636, Santini - - -	19.2	32.3	44.7	33 32.07	2 27.845	0 33.74	30.018
	Victoria - - - -	31.4	43.5	56.5	34 43.80	3 28.086		
	1636, Santini - - -		17.9	30.2	35 17.85	2 27.832	0 34.05	30.166
	Victoria - - - -	14.9	28.1	40.2	36 27.73	3 28.019		
	1636, Santini - - -	49.5	2.2	14.5	37 2.07	2 27.779	0 34.34	30.152
	Victoria - - - -	59.2	11.2	23.6	38 11.33	3 28.078		
	1636, Santini - - -	32.5	44.7	57.9	38 45.03	2 27.919	0 33.70	30.071
	Victoria - - - -	4.6		29.3	40 16.95	3 28.181		
	1636, Santini - - -	38.4	51.0	3.2	40 50.87	2 27.791	0 33.92	30.302
	Victoria - - - -	49.5	1.4	14.1	42 1.67	3 28.228		
	1636, Santini - - -	23.6	35.7	48.3	42 35.87	2 27.829	0 34.20	30.311
	Victoria - - - -	32.3	44.0		43 44.30	3 28.220		
	1636, Santini - - -	6.2	17.9	30.5	44 18.20	2 27.855	0 33.90	30.277
	Victoria - - - -	10.3	22.7		45 22.78	3 28.268		
	1636, Santini - - -	44.0	56.3	9.0	45 56.43	2 27.791	0 33.65	30.389
	Victoria - - - -	18.2	29.7	42.7	8 23 30.20	3 29.060		
	1636, Santini - - -		3.6	16.0	24 3.80	2 27.851	0 33.60	31.121
	Victoria - - - -	37.1	49.3	1.9	25 49.43	3 29.022		
	1636, Santini - - -	10.4	23.3	35.7	26 23.13	2 27.923	0 33.70	31.011
	Victoria - - - -	48.2	0.9	13.0	28 0.70	3 29.116		
	1636, Santini - - -	22.2	34.3	47.2	28 34.57	2 27.960	0 33.87	31.068
	Victoria - - - -	25.7	38.2	50.5	29 38.13	3 29.127		
	1636, Santini - - -	59.2	11.6	24.6	30 11.80	2 27.970	0 33.67	31.069
	Victoria - - - -	2.2	14.3	27.1	31 14.53	3 29.180		
	1636, Santini - - -	35.5	48.2	0.3	31 48.00	2 28.055	— 0 33.47	— 31.037
v. 2	Victoria - - - -	16.9	29.1	41.0	8 2 29.00	3 31.689		
	1636, Santini - - -	33.9	46.5	59.1	2 46.50	1 35.759	— 0 17.50	— 56.010
	Victoria - - - -	43.7	56.0	8.2	10 55.97	3 31.932		
	1636, Santini . - -		13.0	26.0	11 13.37	1 35.778	0 17.40	56.234
	Victoria - - - -	6.2	18.0		15 18.47	3 31.830		
	1636, Santini - - -	23.2	35.2	48.3	15 35.57	1 35.765	0 17.10	56.145
	Victoria - - - -	36.0	48.3	0.9	18 48.40	3 31.970		
	1636, Santini - - -	54.0		18.5	19 6.25	1 35.792	0 17.85	56.258
	Victoria - - - -	7.0	19.0		26 19.27	3 32.062		
	1636, Santini - - -	24.2	36.2	49.0	26 36.47	1 35.726	0 17.20	56.416
	Victoria - - - -	44.0	57.0	9.0	50 56.73	3 24.648		
	1636, Santini - - -	1.0		26.2	51 13.60	1 27.785	0 16.87	56.943
	Victoria - - - -	22.5	35.0		54 34.90	3 24.562		
	1636, Santini - - -	39.5	52.2	4.3	54 52.00	1 27.851	0 17.10	56.791
	Victoria - - - -	11.0	23.0		58 23.25	3 24.709		
	1636, Santini - - -	28.0	40.5	53.0	58 40.50	1 27.743	0 17.25	57.046
	Victoria - - - -	43.2	56.0		9 4 55.61	3 24.758		
	1636, Santini - - -	1.0	13.3	23.2	5 13.16	1 27.790	— 0 17.55	— 57.048

RESULTS.

Corr. Chron. + 21.65 s.

	α	δ
	h. m. s.	° ′ ″
1636, Santini,	23 24 37.63	+ 6 15 54.43

Victoria — 1636, Santini,	Δ α	Δ δ
M. T.		
h. m. s.	m. s.	′ ″
7 51 8.13	— 0 33.85	— 7 46.54
Δt	.09	
Δρ	.00	— .18
p	— .14	+ 3.67

Corr. Chron. + 21.56 s.

	α	δ
	h. m. s.	° ′ ″
1636, Santini,	23 24 37.62	+ 6 15 54.42

Victoria — 1636, Santini,	Δ α	Δ δ
M. T.		
h. m. s.	m. s.	′ ″
8 37 34.60	— 0 17.34	—14 29.11
Δt	— .05	
Δρ	.00	-- .34
p	+ .09	+ 3.65

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs
Nov. 2	Victoria	17.2	28.9		9 9 28.85	3 24.798		
	1636, Santini	34.0	46.0	59.0	9 46.40	1 27.765	— 0 17.55	— 57.113
Nov. 4	Victoria	30.5	12.0	54.7	8 5 42.40	3 28.305		
	(° 29)		19.3	32.0	6 19.70	1 38.599	— 0 37.30	— 49.786
	Victoria	26.1	38.5	51.5	7 38.70	3 28.371		
	(° 29)	3.5	16.2	28.2	8 15.97	1 38.725	0 37.27	49.726
	Victoria	57.4	9.7	22.0	10 9.70	3 28.405		
	(° 29)	34.6	47.1	59.5	10 47.07	1 38.545	0 37.37	49.940
	Victoria	52.2	5.1	17.2	12 4.83	3 28.380		
	(° 29)	19.7	42.2	54.2	12 42.03	1 38.559	0 37.20	49.901
	Victoria	15.7	28.2	40.5	14 28.13	3 28.465		
	(° 29)	53.0	6.0	18.5	15 5.83	1 38.736	0 37.70	49.809
	Victoria	17.9	30.4	42.0	17 30.10	3 28.538		
	(° 29)	55.0	7.0	19.5	18 7.17	1 38.660	0 37.07	49.958
	Victoria	53.5	5.7	18.0	20 5.73	3 28.536		
	(° 29)	30.6	43.5	55.0	20 43.03	1 38.682	0 37.30	49.934
	Victoria	47.8	1.0	13.5	22 0.77	3 28.770		
	(° 29)		38.2	50.0	22 37.62	1 38.681	0 36.85	50.169
	Victoria	28.3	40.7	53.0	24 40.67	3 28.660		
	(° 29)	5.0	17.8	30.0	25 17.60	1 38.690	0 36.93	50.050
	Victoria	48.1	0.3	13.0	47 0.47	3 29.615		
	(° 29)		37.0	49.5	48 37.07	1 39.220	0 36.60	50.475
	Victoria	31.6	43.7	56.2	51 43.83	3 29.572		
	(° 29)	8.0	20.0	32.5	52 20.16	1 39.050	0 36.33	50.602
	Victoria	4.7	16.5	29.2	54 16.80	3 29.772		
	(° 29)	41.0	53.7	5.2	54 53.30	1 39.095	0 36.50	50.757
	Victoria	4.1	17.2	29.6	56 16.97	3 29.710		
	(° 29)	41.0	53.6	6.0	56 53.53	1 39.160	0 36.56	50.630
	Victoria	55.6	7.5	20.3	58 7.80	3 29.638		
	(° 29)		44.2	57.0	58 44.50	1 39.149	— 0 36.70	— 50.569
Nov. 5	Weisse XXIII, 458	27.2	39.2	52.0	7 29 39.47	2 42.250	+ 2 31.90	+ 28.169
	Victoria		11.0	24.0	32 11.37	1 44.248		
	Weisse XXIII, 458	54.2	6.8	19.2	39 6.73	2 42.280	2 31.94	27.942
	Victoria	26.0	38.0	52.0	41 38.67	1 44.505		
	Weisse XXIII, 458	23.0	35.2	47.5	43 35.23	2 42.206	2 31.40	27.911
	Victoria	54.2	6.7	19.0	46 6.63	1 44.462		
	Weisse XXIII, 458	18.2	30.6	43.1	52 30.63	2 42.248	2 31.40	27.873
	Victoria	49.5	1.9	14.7	55 2.03	1 44.642		
	Weisse XXIII, 458	45.1	57.3	9.7	8 2 57.37	2 42.229	2 31.46	27.577
	Victoria	16.5	29.0	41.0	5 28.83	1 44.819		
	Weisse XXIII, 458	44.2	57.1	9.2	9 56.83	2 42.278	+ 2 31.87	+ 27.480
	Victoria	16.3	28.6	41.2	12 28.70	1 44.965		
Nov. 9	Weisse XXIII, 534	3.5	15.2	28.0	7 48 15.57	3 39.670	+ 0 44.15	+ 55.472
	Victoria		59.5	12.0	48 59.72	1 44.278		
	Weisse XXIII, 602	59.2	11.0	23.0	51 11.07	3 51.181	— 2 11.35	+ 66.983

RESULTS.

Corr. Chron. s. + 18.56

	α h. m. s.	δ ° ′ ″
(° 29)	23 25 35.24	+ 5 33 40.46

Victoria—(° 29)

M. T. h. m. s.	Δα m. s.	Δδ ′ ″
8 29 0.48	— 0 36.98	—12 51.73
Δt	— .10	
Δρ	.00	— .30
p	.00	+ 3.61

Corr. Chron. s. + 17.52

	α h. m. s.	δ ° ′ ″
Weisse XXIII, 458,	23 22 46.46	+ 5 36 17.88

Victoria—Weisse XXIII, 458,

M. T. h. m. s.	Δα m. s.	Δδ ′ ″
7 52 26.89	+ 2 31.66	+ 7 7.60
Δt	+ .41	
Δρ	.00	.17
p	— .04	+ 3.60

(Continued.)

VICTORIA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
350.									
r. 9	Weisse XXIII, 534 .	4. 3	16. 2	28. 9	7 53 16.47	3	39.621	+ 0 44.56	+ 55.202
	Victoria	48. 9	1. 0	13. 2	54 1.03	1	44.499		
	Weisse XXIII, 602 .	59. 5		24. 1	56 11.80	3	51.169	— 2 10.77	66.750
	Weisse XXIII, 534 .	32. 3	44. 7	57. 1	58 44.70	3	39.650	+ 0 44.40	55.172
	Victoria	17. 0	29. 0	41. 3	59 29.10	1	44.558		
	Weisse XXIII, 602 .	28. 2	40. 2	52. 7	8 1 40.37	3	51.151	— 2 11.27	66.673
	Weisse XXIII, 534 .	25. 1	37. 0	49. 3	3 37.13	3	39.697	+ 0 45.60	55.287
	Victoria	10. 2	23. 0	35. 0	4 22.73	1	44.490		
	Weisse XXIII, 602 .	21. 2	33. 5	46. 1	6 33.60	3	51.059	— 2 10.87	66.649
	Weisse XXIII, 534 .	33. 0	45. 0	57. 1	8 45.03	3	39.498	+ 0 44.94	55.050
	Victoria	18. 0	29. 9	42. 0	9 29.97	1	44.528		
	Weisse XXIII, 602 .	28. 7	40. 0	52. 9	11 40.53	3	51.048	— 2 10.56	66.600
	Weisse XXIII, 534 .	31. 4	43. 6	56. 0	13 43.67	3	39.477	+ 0 44.80	55.017
	Victoria	16. 0	28. 4	41. 0	14 28.47	1	44.540		
	Weisse XXIII, 602 .	27. 2	39. 2	51. 4	16 39.27	3	50.970	— 2 10.80	66.510
	Weisse XXIII, 534 .	34. 4		59. 1	20 46.75	3	39.493	+ 0 45.02	54.927
	Victoria	19. 3	32. 0	44. 0	21 31.77	1	44.646		
	Weisse XXIII, 602 .	29. 5	41. 9	51 2	23 40.87	3	51.012	— 2 9.10	66.446
	Weisse XXIII, 534 .	41. 3		5. 0	25 53.15	3	39.520	+ 0 44.95	54.837
	Victoria	26. 0	38. 0	50. 3	26 38.10	1	44.763		
	Weisse XXIII, 602 .	35. 3	48. 0	0. 9	28 48.07	3	50.886	— 2 9.97	66.203
	Weisse XXIII, 534 .	1. 5	13. 9	26. 0	31 13.80	3	39.301	+ 0 45.05	54.632
	Victoria		59. 0	11. 0	31 58.85	1	44.749		
	Weisse XXIII, 602 .	57. 3	9. 1	21. 5	34 9.30	3	50.908	— 2 10.45	66.239
	Weisse XXIII, 534 .	52. 0	4. 7	17. 5	37 4.73	3	39.321	+ 0 45.64	54.739
	Victoria	38. 1	50. 7	2. 3	37 50.37	1	44.662		
	Weisse XXIII, 602 .	48. 7	0. 9	13. 0	40 0.87	3	50.760	— 2 10.50	66.178
	Weisse XXIII, 534 .	0. 8	12. 5	25. 1	42 12.80	3	39.266	+ 0 45.30	54.736
	Victoria	46. 0	58. 0	10. 3	42 58.10	1	44.610		
	Weisse XXIII, 602 .	56. 0	8. 3	21. 0	45 8.43	3	50.692	— 2 10.33	66.162
	Weisse XXIII, 534 .	58. 7	11. 3	23. 4	47 11.13	3	38.758	+ 0 45.74	54.647
	Victoria	44. 1	57. 2	9. 3	47 56.87	1	44.191		
	Weisse XXIII, 602 .	54. 3	6. 2	18. 6	50 6.37	3	50.312	— 2 9.50	+ 66.201
v. 10	Weisse XXIII, 534 .	44. 1	56. 0	9. 0	7 10 56.37	2	48.959	+ 1 13.20	+ 37.867
	Victoria	57. 3	9. 4	22. 0	12 9.57	1	41.259		
	Weisse XXIII, 602 .	39. 7	52. 0	4. 3	13 52.00	3	30.210	— 1 42.43	49.031
	Weisse XXIII, 534 .	28. 2	39. 7	52. 8	15 40.23	2	48.672	+ 1 13.70	37.729
	Victoria	41. 7	54. 1	6. 0	16 53.93	1	41.110		
	Weisse XXIII, 602 .	23. 2	36. 2	48. 9	18 35.80	3	30.252	— 1 41.87	49.222
	Weisse XXIII, 534 .	4. 4	17. 2	29. 6	20 17.07	2	48.670	+ 1 13.76	37.714
	Victoria	18. 3	31. 2	43. 0	21 30.83	1	41.123		
	Weisse XXIII, 602 .		12. 0	25. 0	23 12.23	3	30.292	— 1 41.40	49.249
	Weisse XXIII, 534 .	20. 2	32. 4	45. 6	25 32.73	2	48.698	+ 1 13.30	37.719
	Victoria	34. 1	34. 0	58. 3	26 46.13	1	41.146		
	Weisse XXIII, 602 .	15. 0	27. 0	40. 0	28 27.33	3	30.231	— 1 41.20	49.165
	Weisse XXIII, 534 .	40. 2	52. 3	5. 0	54 52.50	2	48.782	+ 1 14.77	37.174
	Victoria	55. 2	7. 3	19. 3	56 7 27	1	41.775		
	Weisse XXIII, 602 .	36. 0	48. 2	1. 3	57 48.50	3	30.366	— 1 41.23	48.671
	Weisse XXIII, 534 .	25. 0	37. 3	50. 3	8 0 37.53	2	48.851	+ 1 14.87	37.249
	Victoria	40. 0	52. 5	4. 7	1 52.40	1	41.769		
	Weisse XXIII, 602 .	21. 0	33. 2	46. 6	3 33.40	3	30.300	— 1 41.00	+ 48.611

RESULTS.

Corr. Chron. + 14.56 s.

	α h. m. s.	δ ° ′ ″
Weisse XXIII, 534,	23 26 16.09	+ 5 8 30.26
Weisse XXIII, 602,	23 29 12.34	5 5 33.60

Victoria—Weisse XXIII, 534, Δ α Δ δ

M. T. h. m. s.	m. s	′ ″
8 18 33.32	+ 0 45.01	+14 4.95
Δ t	.12	
Δ ρ	.00	.33
p +	.01	+ 3.51

Victoria — Weisse XXIII, 602.

M. T. h. m. s.	m. s.	′ ″
8 18 33.32	— 2 10.46	+17 1.55
Δ t —	.36	
Δ ρ	.00	.41
p +	.10	+ 3.52

Corr. Chron. + 14.31 s.

	α h. m. s.	δ ° ′ ″
Weisse XXIII, 534,	23 26 16.09	+ 5 8 30.23
Weisse XXIII, 602,	23 29 12.34	5 5 33.59

Victoria—Weisse XXIII, 534, Δ α Δ δ

M. T. h. m. s.	m. s.	′ ″
7 46 4.11	+ 1 14.20	+ 9 34.45
Δ t +	.20	
Δ ρ	.00	.23
p —	.02	+ 3.40

Victoria—Weisse XXIII, 602.

M. T. h. m. s.	m. s.	′ ″
7 46 4.11	— 1 41.37	+12 30 29
Δ t	.28	
Δ ρ	.00	.30
p —	.02	+ 3.40

(Continued.)

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Nov. 10	Weisse XXIII, 534 .	50.2	2.7	15.2	8 6 2.70	2 48.699	+ 1 14.57	+ 37.048
	Victoria	5.2	17.0	29.6	7 17.27	1 41.818		
	Weisse XXIII, 602 .	46.0	58.1	10.2	8 58.10	3 30.279	— 1 41.83	48.541
	Weisse XXIII, 534 .	10.2	22.0	34.0	11 22.07	2 48.595	+ 1 14.93	36.904
	Victoria	25.0	37.0	49.0	12 37.00	1 41.858		
	Weisse XXIII, 602 .	5.2	17.2	29.3	14 17.23	3 30.285	— 1 40.23	48.507
	Weisse XXIII, 534 .	47.1	59.0	11.3	15 59.13	2 48.763	+ 1 14.64	36.980
	Victoria	1.3	14.0	26.0	17 13.77	1 41.950		
	Weisse XXIII, 602 .	42.0	55.0	7.3	18 54.83	3 39.212	— 1 41.06	+ 48.342
Nov. 13	Victoria	43.0	55.0	8.0	7 15 55.33	2 31.462		
	Weisse XXIII, 602 .		59.0	11.2	15 58.93	2 32.652	— 0 3.60	+ 1.190
	Victoria	50.0	2.0		19 2.13	2 31.494		
	Weisse XXIII, 602 .	54.2	6.0	18.5	19 6.23	2 32.675	0 4.10	1.181
	Victoria	21.2	33.0	46.2	21 33.47	2 31.532		
	Weisse XXIII, 602 .	25.0	37.0	49.5	21 37.27	2 32.590	0 3.80	1.058
	Victoria	17.2		42.0	23 29.60	2 31.580		
	Weisse XXIII, 602 .	20.0	33.0	45.3	23 32.83	2 32.660	0 3.23	1.080
	Victoria	52.3	4.2	17.2	26 4.57	2 31.639		
	Weisse XXIII, 602 .	56.0	7.9	20.0	26 7.97	2 32.665	0 3.40	1.026
	Victoria	48.0	59.3	12.0	27 59.77	2 31.678		
	Weisse XXIII, 602 .	51.6	3.2	15.8	28 3.53	2 32.729	0 3.76	1.051
	Victoria	53.0	5.0	17.4	32 5.13	2 31.709		
	Weisse XXIII, 602 .	56.2	9.1	21.0	32 8.77	2 32.752	0 3.64	1.043
	Victoria	11.5	24.0	36.5	34 24.00	2 31.700		
	Weisse XXIII, 602 .	15.0	27.5	39.7	34 27.40	2 32.719	0 3.40	1.019
	Victoria	46.0	58.3	11.0	36 58.43	2 31.709		
	Weisse XXIII, 602 .	49.7	2.0	14.7	37 2.13	2 32.731	0 3.70	1.022
	Victoria	54.0	7.0	19.0	39 6.67	2 31.820		
	Weisse XXIII, 602 .	57.5	10.5	22.5	39 10.17	2 32.792	0 3.50	0.972
	Victoria	40.2	53.0	5.0	41 52.73	2 31.709		
	Weisse XXIII, 602 .	43.6	56.3	8.5	41 56.13	2 32.740	0 3.40	1.031
	Victoria	18.5	30.7	43.0	43 30.73	2 31.971		
	Weisse XXIII, 602 .	22.1	34.0	46.2	43 34.10	2 32.700	0 3.37	0.729
	Victoria	21.2	33.0	46.0	46 33.40	2 31.829		
	Weisse XXIII, 602 .	24.6	36.3	49.0	46 36.63	2 32.568	0 3.23	0.745
	Victoria	6.5	19.0	30.0	48 18.50	2 31.815		
	Weisse XXIII, 602 .	9.7	22.0	33.7	48 21.80	2 32.719	0 3.30	0.904
	Victoria	40.0		5.0	50 52.50	2 31.962		
	Weisse XXIII, 602 .	43.2	55.0	7.9	50 55.37	2 32.650	0 2.87	0.688
	Victoria	29.5	42.0	54.3	52 41.93	2 31.868		
	Weisse XXIII, 602 .	33.0	45.0	57.5	52 45.17	2 32.742	0 3.20	0.874
	Victoria	40.7	53.2	5.2	54 53.03	2 32.002		
	Weisse XXIII, 602 .	43.1	56.1	8.0	54 55.73	2 32.618	0 2.70	0.616
	Victoria	14.0	26.0	39.0	57 26.33	2 31.620		
	Weisse XXIII, 602 .	17.0	29.5	41.8	57 29.43	2 32.350	0 3.10	0.730
	Victoria	22.0	34.3	47.0	7 59 34.43	2 31.742		
	Weisse XXIII, 602 .	25.0	37.2	49.5	59 37.23	2 32.391	— 0 2.80	+ 0.649

RESULTS.

Corr. Chron. + 12.84 s.

	α h. m. s.	δ ° ′ ″
Weisse XXIII, 602,	23 29 12.34	+ 5 5 33.4

Victoria—Weisse XXIII, 602, Δ α Δ δ

M. T. h. m. s.	m. s.	″
7 39 54.65	— 0 3.34	+ 0 14.0
Δ i	.01	
Δ ρ	.00	.01
p —	.03	+ 3.3

VICTORIA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
v. 23	Victoria	21.0	33.2	46.3	8 1 33.50	2 31.758		
	Weisse XXIII, 602	23.9	36.0	48.6	1 36.17	2 32.398	— 0 2.67	+ 0.640
v. 14	Weisse XXIII, 602	56.6	8.9	21.2	7 26 8.90	2 33.190	+ 0 32.40	— 13.067
	Victoria		41.7	53.2	26 41.30	2 46.257		
	Weisse XXIII, 602	32.1	44.3	57.0	28 44.47	2 33.228	0 32.35	13.101
	Victoria		16.9	29.1	29 16.82	2 46.329		
	Weisse XXIII, 602	13.2	25.7	37.9	31 25.60	2 33.132	0 32.63	13.237
	Victoria	46.1	58.3	10.3	31 58.23	2 46.369		
	Weisse XXIII, 602	3.7	16.0	28.2	33 15.97	2 33.089	0 32.73	13.180
	Victoria	36.3	48.5	1.3	33 48.70	2 46.269		
	Weisse XXIII, 602	27.2	49.4	51.4	35 39.33	2 33.160	0 32.47	13.113
	Victoria	59.4	12.0	24.0	36 11.80	2 46.273		
	Weisse XXIII, 602	32.2	44.1	56.2	37 44.17	2 33.140	0 33.13	13.218
	Victoria	5.1	17.6	29.2	38 17.30	2 46.358		
	Weisse XXIII, 602	47.1	59.0	11.0	39 59.03	2 33.141	0 32 84	13.225
	Victoria	19.3	32.1	44.2	40 31.87	2 46.366		
	Weisse XXIII, 602	21.6	34.3	46.7	42 34.20	2 33.112	0 32.65	13.320
	Victoria		6.9	19.4	43 6.85	2 46.432		
	Weisse XXIII, 602	34.5	47.1	59.3	44 46.97	2 33.105	0 32.86	13.364
	Victoria	7.5	19.7	32.3	45 19.83	2 46.469		
	Weisse XXIII, 602	19.4	31.7	44.0	47 31.70	2 33.119	0 32.90	13.245
	Victoria	52.2		17.0	48 4.60	2 46.364		
	Weisse XXIII, 602	17.5	29.7	42.1	49 29.78	2 33.133	+ 0 33.15	— 13.335
	Victoria	50.6	3.0	15.2	50 2.93	2 46.468		
v. 18	8233, B. A. C. . .	37.3	49.7	2.0	6 55 49.67	2 39.121	+ 0 5.45	+ 3.712
	Victoria			7.5	55 55.12	2 35.409		
	8233, B. A. C. . .	10.5	22.7	35.2	58 22.80	2 39.178	0 5.65	3.648
	Victoria	16.0	28.5		58 28.45	2 35.530		
	8233, B. A. C. . .	17.0	29.2	42.0	7 0 29.40	2 39.100	0 5.70	3.719
	Victoria		35.0	47.6	0 35.10	2 35.381		
	8233, B. A. C. . .	46.8	58.2	10.8	2 58.60	2 39.080	0 5.73	3.629
	Victoria	52.0	4.0	17.0	3 4.33	2 35.451		
	8233, B. A. C. . .	56.1	8.7	21.2	5 8.67	2 39.088	0 5.43	3.615
	Victoria	1.9	14.4	26.0	5 14.10	2 35.473		
	8233, B. A. C. . .	26.2	38.5	50.8	6 38.50	2 39.102	0 5.83	3.558
	Victoria	32.0	44.0	57.0	6 44.33	2 35.544		
	8233, B. A. C. . .	42.0	54.5	6.8	8 54.43	2 39.060	0 6.07	3.475
	Victoria	48.2	0.3	13.0	9 0.50	2 35.585		
	8233, B. A. C. . .	54.2	6.8	19.0	11 6.67	2 39.111	9 6.06	3.589
	Victoria	0.2	13.0	25.0	11 12.73	2 35.522		
	8233, B. A. C. . .	16.0	28.2	40.3	14 28.16	2 39.091	0 5.91	3.531
	Victoria	21.2	34.5	46.5	14 34.07	2 35.560		
	8233, B. A. C. . .	7.0	19.1	31.7	16 19.27	2 39.080	0 6.06	3.451
	Victoria	13.2	25.3	37.5	16 25.33	2 35.629		
	8233, B. A. C. . .	21.3	33.2	45.7	7 22 33.40	2 39.139	+ 0 6.33	+ 3.550
	Victoria	27.7	39.5	52.0	22 39.73	2 35.589		

RESULTS.

Corr. Chron. + 12.39 s.

	α h. m. s.	δ ° ′ ″
Weisse XXIII, 602,	23 29 12.34	+5 5 33.43

Victoria—Weisse XXIII, 602, Δα Δδ

M. T. h. m. s.	m. s.	′ ″
7 38 41.50	+ 0 32.74	— 3 23.16
Δt	+ .09	
Δρ	.00	— .08
p	— .04	+ 3.33

Corr. Chron. + 10.49 s.

	α h. m. s.	δ ° ′ ″
8233, B. A. C.	23 32 16.76	+ 4 49 8.27

Victoria — 8233, B. A. C. Δα Δδ

M. T. h. m. s.	m. s.	′ ″
7 20 6.65	+ 0 6.24	+ 0 54.29
Δt	+ .02	
Δρ	.00	— .02
p	— .03	+ 3.29

(Continued.)

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Nov. 18	8233, B. A. C. . .	53.8	6.2	18.3	7 25 6.10	2 39.091	+ 0 6.40	+ 3.501
	Victoria	0.2	12.5	24.8	25 12.50	2 35.590		
	8233, B. A. C. . .	1.4	13.6	26.2	27 13.73	2 39.084	0 6.40	3.541
	Victoria	7.5	20.0	32.9	27 20.13	2 35.543		
	8233, B. A. C. . .	44.1	57.2	9.2	29 56.83	2 39.120	0 6.87	3.541
	Victoria	51.0	4.1	16.0	30 3.70	2 35.579		
	8233, B. A. C. . .	59.2	10.9	23.0	32 11.03	2 39.042	0 6.84	3.368
	Victoria	5.5	18.1	30.0	32 17.87	2 35.674		
	8233, B. A. C. . .	18.6	30.7	43.2	35 30.83	2 39.115	0 6.67	3.345
	Victoria	25.2	37.3	50.0	35 37.50	2 35.770		
	8233, B. A. C. . .	16.5	29.2	41.3	37 29.00	2 39.132	0 6.83	3.463
	Victoria	23.2	36.1	48.2	37 35.83	2 35.669		
	8233, B. A. C. . .	12.4	24.4	37.2	39 24.67	2 39.150	0 6.96	3.488
	Victoria	19.2	31.4	44.3	39 31.63	2 35.662		
	8233, B. A. C. . .	17.3	29.3	41.9	41 29.50	2 39.090	0 6.83	3.540
	Victoria	24.1	36.4	48.5	41 36.33	2 35.550		
	8233, B. A. C. . .	14.6	27.3	39.3	43 27.07	2 39.109	+ 0 6.86	+ 3.410
	Victoria	21.5	34.0	46.3	43 33.93	2 35.690		
Nov. 21	8233, B. A. C. . .	4.1		29.2	8 17 16.65	1 47.981	+ 2 21.05	— 22.987
	Victoria . . .	25.1	38.0	50.0	19 37.70	2 40.801		
	8233, B. A. C . .	0.3	12.5	24.7	21 12.50	1 47.984	2 21.53	23.033
	Victoria	22.1	34.0	46.0	23 34.03	2 40.850		
	8233, B. A. C. . .	26.5	39.0	51.7	25 39.07	1 47.908	2 21.43	23.018
	Victoria	48.2	0.3	13.0	28 0.50	2 40.759		
	8233, B. A. C. . .	18.2	31.0	43.3	29 30.83	1 47.920	2 22.04	23.086
	Victoria	40.3	53.1	5.2	31 52.87	2 40.839		
	8233, B. A. C. . .	34.0	46.1	58.5	33 46.20	1 47.902	2 21.50	23.021
	Victoria	55.2	7.9	20.0	36 7.70	2 40.756		
	8233, B. A. C. . .	40.2	52.7	5.3	42 52.73	1 47.772	2 21.57	23.064
	Victoria	2.0	14.1	26.8	45 14.30	2 40.669		
	8233, B. A. C. . .	34.0	46.3	59.2	46 46.50	1 47.849	2 22.27	22.980
	Victoria	56.3	9.0	21.0	49 8.77	2 40.662		
	8233, B. A. C. . .	7.4	19.7	32.2	51 19.77	1 47.810	2 22.63	23.034
	Victoria	30.0	42.2	55.0	53 42.40	2 40.677		
	8233, B. A. C. . .	5.2	17.4	29.7	55 17.43	1 47.783	2 22.60	23.186
	Victoria	27.9	40.0	52.2	57 40.03	2 40.802		
	8233, B. A. C. . .	43.3	55.8	8.0	58 55.70	1 47.765	+ 2 22.77	— 23.133
	Victoria	6.2	18.3	30.9	9 1 18.47	2 40.731		
Nov. 24	Victoria	39.0	51.0	3.6	7 18 51.00	1 46.240		
	Weisse XXIII, 803	1.7	13.5	26.2	21 13.80	3 37.644	— 2 22.80	+ 51.484
	Victoria	12.0	24.7	37.0	23 24.57	1 46.340		
	Weisse XXIII, 803	34.7	46.9	59.3	25 46.97	3 37.722	2 22.40	51.462
	Victoria	5.8		31.0	27 18.40	1 46.380		
	Weisse XXIII, 803	27.9	40.3	52.0	29 40.07	3 37.640	2 21.65	51.340
	Victoria	3.0		28.2	32 15.60	1 46.325		
	Weisse XXIII, 803	25.2	37.7	50.0	7 34 37.63	3 37.635	— 2 22.03	+ 51.390

RESULTS.

Corr. Chron. + 9.34 s.

	α h. m. s.	δ ′ ″
8233, B. A. C.	23 32 16.74	+ 49 7.13

Victoria — 8233, B. A. C.	Δα	Δδ
M. T. h. m. s.	m. s.	′ ″
8 40 47.02	+ 2 21.94	— 5 54.33
Δt	.39	
Δρ	.00	— .15
p	+ .09	+ 3.22

(Continued.)

VICTORIA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
v. 24	Victoria	13.2	25.2	37.5	7 36 25.30	1 46.130		
	Weisse XXIII, 803	34.7	47.0	59.2	38 46.97	3 37.440	— 2 21 67	— 51.390
	Victoria	48.2	0.5	12.2	41 0.30	1 45.950		
	Weisse XXIII, 803	9.6	21.7	34.1	43 21.80	3 37.285	2 21.50	51.415
	Victoria	44.0	56.2	9.0	45 56.40	1 45.849		
	Weisse XXIII, 803	5.2	17.9	30.0	48 17.70	3 37.200	2 21.30	51.431
	Victoria	22.1	34.0	46.2	52 34.10	1 45.862		
	Weisse XXIII, 803	43.7	56.1	8.2	54 56.00	3 37.161	2 21.90	51.379
	Victoria	47.8		13.0	57 0.40	1 45.889	2 21.17	51.272
	Weisse XXIII, 803	9.2	21.4	34.1	59 21.57	3 37.081		
	Victoria	47.1	59.3	11.3	8 0 59.23	1 45.803	— 2 20.97	— 51.325
	Weisse XXIII, 803	8.1	20.2	32.3	3 20.20	3 37.048		
ov. 30	Weisse XXIII, 803	13.8	26.0	38.0	6 17 25.93	2 46.425	+ 2 59.94	+ 36.903
	Victoria	13.2	26.2	38.2	20 25.87	1 39.689		
	Weisse XXIII, 934	22.9	35.0	47.5	23 35.13	3 38.388	— 3 9.26	58.779
	Weisse XXIII, 803	47.1	59.0	11.2	31 59.10	2 46.420	+ 3 0.[illegible]	36.846
	Victoria	47.5		12.5	35 0.00	1 39.741		
	Weisse XXIII, 934	56.0	8.2	20.7	38 8.30	3 38.359	— 3 8.30	58.698
	Weisse XXIII, 803	19.1	31.0	43.5	41 31.20	2 46.477	+ 3 0.96	36.779
	Victoria	20.0	32.5	44.0	44 32.16	1 39.865		
	Weisse XXIII, 934	28.0	40.0	52.5	47 40.16	3 38.622	— 3 8.00	58.837
	Weisse XXIII, 803	13.5	26.3	38.4	50 26.07	2 46.401	+ 3 1.00	36.513
	Victoria	15.1	27.1	39.0	53 27.07	1 40.055		
	Weisse XXIII, 934	22.2	35.0	47.2	56 34.80	3 38.634	— 3 7.73	58.659
	Weisse XXIII, 803	23.9	36.0	48.1	8 4 36.00	2 46.479	+ 3 2.26	36.646
	Victoria	26.8	38.0	50.0	7 38.26	1 40.000		
	Weisse XXIII, 934	33.0	45.0	57.2	10 45.07	3 38.675	— 3 6.81	58.755
	Weisse XXIII, 803	56.5	9.3	21.3	14 9.03	2 46.530	+ 3 2.44	36.537
	Victoria	59.0	11.6	23.8	17 11.47	1 40.160		
	Weisse XXIII, 934	5.8	18.0	30.2	20 18.00	3 38.660	— 3 6.53	58.580
	Weisse XXIII, 803	41.9	54.2	6.6	22 54.23	2 46.482	+ 3 2.27	36.620
	Victoria	44.2	56.4	8.9	25 56.50	1 40.029		
	Weisse XXIII, 934	50.9	3.0	15.0	29 2.97	3 38.542	— 3 6.47	+ 58.593
ec. 8	Weisse XXIII, 1032	23.2	35.8	48.2	6 21 35.73	2 50.298	+ 0 24.94	+ 24.057
	Victoria	48.5	0.5	13.0	22 0.67	1 56.408		
	Weisse XXIII, 1032	43.6	56.2		23 56.05	2 50.336	0 24.85	24.189
	Victoria	8.2	21.3	33.2	24 20.90	1 56.314		
	Weisse XXIII, 1032	50.3	2.7		26 2.60	2 50.249	0 25.20	24.078
	Victoria	15.2	28.2	40.0	27 27.80	1 56.338		
	Weisse XXIII, 1032	6.8	19.2		30 19.03	2 50.249	0 25.10	24.057
	Victoria	32.0	44.2	56.2	30 44.13	1 56.359		
	Weisse XXIII, 1032	15.3	27.9		33 27.83	2 50.248	0 25.40	24.053
	Victoria	41.0	53.0	5.7	33 53.23	1 56.362		
	Weisse XXIII, 1032	46.5	59.1		35 59.10	2 50.282	0 25.40	24.050
	Victoria	12.2	24.3	37.0	36 24.50	1 56.399		
	Weisse XXIII, 1032	0.2	12.5		37 12.48	2 50.191	+ 0 25.65	+ 23.920
	Victoria	26.0	38.2	50.2	37 38.13	1 56.438		

RESULTS.

Corr. Chron. + 8.14 s.

	α h. m. s.	δ ° ′ ″
Weisse XXIII, 803,	23 39 24.12	+ 4 25 20.73

Victoria—Weisse XXIII, 803, Δ α Δ δ

M. T. h. m. s.	m. s.	′ ″
7 39 56.77	— 2 21.74	+13 9.81
Δ t	— .39	
Δ ρ	.00	.32
p	+ .02	+ 3.14

Corr. Chron. + 0 3.65 m. s.

	α h. m. s.	δ ° ′ ″
Weisse XXIII, 803,	23 39 24.04	+ 4 25 20.39
934,	23 45 34.50	4 19 41.75

Victoria—Weisse XXIII, 803, Δ α Δ δ

M. T. h. m. s.	m. s.	′ ″
6 54 56.70	+ 3 1.39	+ 9 23.93
Δ t	+ .50	
Δ ρ	.00	+ .23
p	— .01	+ 2.99

Victoria—Weisse XXIII, 934.

M. T. h. m. s.	m. s.	′ ″
6 54 56.70	— 3 7.57	+15 4.00
Δ t	— .51	
Δ ρ	.00	+ .37
p	— .01	+ 2.99

Corr. Chron. + 0 2.12 m s.

Victoria—Weisse XXIII, 1032.

M. T. h. m. s.	m. s.	′ ″
6 43 54.70	+ 0 25.76	+ 6 10.58
Δ t	+ .07	
Δ ρ	.00	+ .15
p	.00	+ 2.81

(Continued.)

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Dec. 8	Weisse XXIII, 1032	36.2	48.3		6 39 48.43	2 50.229	+ 0 25.40	+ 24.064	
	Victoria	1.3	14.0	26.2	40 13.83	1 56.332			
	Weisse XXIII, 1032	8.7	21.2		50 21.15	2 50.059	0 25.65	23.997	
	Victoria	34.2	47.0	59.2	50 46.80	1 56.229			
	Weisse XXIII, 1032	52.7	5.1	17.1	52 4.97	2 50.059	0 26.13	23.997	
	Victoria	19.3	31.0	43.0	53 31.10	1 56.229			
	Weisse XXIII, 1032	3.2	15.9	28.2	56 15.77	2 50.050	0 25.66	24.249	
	Victoria	29.0	41.3	54.0	56 41.43	1 55.968			
	Weisse XXIII, 1032	14.3	27.0	39.0	7 1 26.77	2 50.362	0 26.73	24.351	
	Victoria	41.2	53.3	6.0	1 53.50	1 56.178			
	Weisse XXIII, 1032	41.2	53.2	6.2	6 53.27	2 50.239	0 27.63	24.186	
	Victoria	8.5	21.0	33.2	7 20.90	1 56.220			
	Weisse XXIII, 1032	41.2	53.3	5.2	10 53.23	2 50.389	+ 0 26.94	+ 24.316	
	Victoria	8.5	20.0	32.0	11 20.17	1 56.240			
Dec. 9	Weisse XXIII, 1032	21.0	33.8	46.0	6 34 33.60	2 50.028	+ 1 31.27	+ 30.045	
	Victoria	52.3	5.0	17.3	36 4.87	1 50.150			Corr. Chron. m. s. + 0 1.37
	Weisse XXIII, 1032	6.8	19.1	31.7	37 19.20	2 50.070	1 31.70	29.958	
	Victoria	38.2	51.0	3.5	38 50.90	1 50.279			α δ
	Weisse XXIII, 1032	36.8	8.7	21.3	42 8.93	2 50.059	1 31.47	30.248	h. m. s. ° ′ ″ Weisse XXIII, 1032, 23 50 9.45 + 4 34 28.50
	Victoria	28.0	40.2	53.0	43 40.40	1 49.978			Victoria—Weisse XXIII, 1032, Δ α Δ δ
	Weisse XXIII, 1032	49.7	2.0	14.6	45 1.98	2 49.968	1 31.85	29.967	M. T.
	Victoria	21.3	33.5		46 33.83	1 50.175			h. m. s. m. s. ′ ″ 6 49 38.30 + 1 31.80 + 7 42.28
	Weisse XXIII, 1032	7.6	19.3	32.5	48 19.80	2 50.010	1 31.70	30.048	Δ t + .25
	Victoria	39.3	51.2	4.0	49 51.50	1 50.129			Δ ρ .00 + .19
	Weisse XXIII, 1032	33.2	45.7	58.3	51 45.73	2 49.969	1 31.77	30.004	p + .01 + 2.78
	Victoria	5.0	17.8	29.7	53 17.50	1 50.132			
	Weisse XXIII, 1032	22.2	34.6	47.1	54 34.63	2 49.950	1 32.30	30.072	
	Victoria	54.5	7.1	19.2	56 6.93	1 50.045			
	Weisse XXIII, 1032	57.0	9.0	21.2	58 9.07	2 50.084	1 31.83	30.181	
	Victoria	28.7	41.0	53.0	59 40.90	1 50.070			
	Weisse XXIII, 1032	41.2	52.9	5.7	7 0 53.26	2 50.078	+ 1 32.31	+ 30.176	
	Victoria	13.0	25.7	38.0	2 25.57	1 50.069			
									Corr. Chron. m. s. + 0 0.91
Dec. 11	Weisse XXIII, 1032	50.3	3.0	15.1	8 19 2.80	3 48.371	+ 3 50.26	+ 44.748	
	Weisse XXIII, 1045		37.6	50.0	19 37.55	1 51.102	3 15.51	— 12.600	
	Victoria	41.0	53.2	5.0	22 53.06	2 33.535			α δ
									h. m. s. ° ′ ″ Weisse XXIII, 1032, 23 50 9.42 + 4 34 28.36
	Weisse XXIII, 1032	29.1	41.3	54.1	28 41.50	3 48.480	3 50.80	+ 44.621	1045, 23 50 44.14 4 49 9.96
	Weisse XXIII, 1045		16.0	28.4	29 16.00	1 51.159	3 16.30	— 12.779	
	Victoria		32.0	45.0	32 32.30	2 33.771			Victoria—Weisse XXIII, 1032,
									Δ α Δ δ
	Weisse XXIII, 1032	50.2	2.1	14.3	35 2.20	3 48.550	3 50.93	+ 44.791	M. T.
	Weisse XXIII, 1045		37.2	49.2	35 37.20	1 51.158	3 15.93	— 12.680	h. m. s. m. s. ′ ″
	Victoria	41.2	53.2	5.0	38 53.13	2 33.671			8 42 16.21 + 3 51.33 +11 28.58
									Δ t + .63
	Weisse XXIII, 1032	31.2	43.2	55.0	41 43.13	3 48.442	3 51.60	+ 44.932	Δ ρ .00 + .31
	Weisse XXIII, 1045		18.0	30.2	42 18.13	1 51.257	3 16.60	— 12.332	p + .16 + 2.81
	Victoria	22.0	35.2	47.0	45 34.73	2 33.422			
									Victoria—Weisse XXIII, 1045,
	Weisse XXIII, 1032	18.1	30.2	42.3	9 7 30.20	3 48.458	3 53.07	+ 44.912	+ 3 16.84 — 3 12.83
	Weisse XXIII, 1045		5.0	17.5	8 5.20	1 51.282	+ 3 18.07	— 12.343	Δ t + .53
	Victoria	11.0	23.2	35.6	11 23.27	2 33.458			Δ ρ .00 — .09
									p + .16 + 2.81

VICTORIA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m s.	w. revs.	m. s.	revs.
c. 20	Victoria	27.0	39.2	51.2	7 58 39.13	3 35.371		
	Weisse, 0.83		0.0	12.2	59 0.03	2 23.050	— 0 20.90	— 42.233
	Victoria	48.2	0.6	12.9	8 2 0.57	3 35.252		
	Weisse, 0.83		21.2	34.0	2 21.42	1 53.360	0 20.85	41.804
	Victoria	40.3	52.3		6 52.38	3 35.041		
	Weisse, 0.83	1.0	12.9	25.2	7 13.03	2 23.265	0 20.65	41.688
	Victoria	2.2	14.0		9 14.00	3 35.215		
	Weisse, 0.83		34.2	47.1	9 34.20	2 23.379	0 20.20	41.748
	Victoria	55.2	7.9		10 7.90	3 35.189		
	Weisse, 0.83		28.3	40.5	10 28.30	3 23.325	0 20.40	41.776
	Victoria	47.3	59.7		11 59.70	3 35.238		
	Weisse, 0.83		19.9	32.5	12 19.90	2 23.329	0 20.20	41.821
	Victoria	29.7	42.0		15 42.00	3 35.132		
	Weisse, 0.83		2.0	14.0	16 2.00	2 23.282	0 20.00	41.762
	Victoria	43.3	56.0		21 55.87	3 35.139		
	Weisse, 0.83	3.0	15.7	28.0	22 15.57	2 23.361	0 19.70	41.690
	Victoria	24.1	36.8	49.0	24 36.63	3 35.191		
	Weisse, 0.83	44.2		8.9	24 56.55	2 23.430	0 19.92	41.673
	Victoria	30.0	43.0	55.0	27 42.67	3 35.100		
	Weisse, 0.83	49.0	1.5	14.7	28 1.13	2 23.572	0 18.46	41.440
	Victoria	22.0	34.1	47.0	30 34.37	3 34.969		
	Weisse, 0.83		53.5	6.2	30 53.67	2 23.588	0 19.30	41.293
	Victoria	43.1	55.0	7.9	33 55.33	3 34.970		
	Weisse, 0.83	2.0		27.1	34 14.55	2 23.235	0 19.22	41.647
	Victoria	5.2	17.2		37 17.20	3 34.773		
	Weisse, 0.83		36.0	48.2	37 36.00	2 23.505	— 0 18.80	— 41.180
c. 21	Weisse, 0.83	21.2	33.2	45.7	6 26 33.37	1 52.135	+ 0 49.66	— 29.519
	Victoria	10.9	23.0	35.2	27 23.03	2 51.487		
	Weisse, 0.83	29.5	42.0	54.7	28 42.07	1 52.201	0 49.53	29.389
	Victoria	19.0		44.0	29 31.60	2 51.423		
	Weisse, 0.83	52.2	5.0	17.9	32 5.03	1 52.247	0 50.22	29.373
	Victoria	43.0		7.5	32 55.25	2 51.453		
	Weisse, 0.83	23.2	36.0	48.3	35 35.83	1 52.390	0 50.10	29.277
	Victoria	13.5	26.0	38.3	36 25.93	2 51.500		
	Weisse, 0.83	5.3	17.8	30.2	38 17.77	1 52.625	0 50.00	29.402
	Victoria	55.1	8.0	20.2	39 7.77	2 51.860		
	Weisse, 0.83	27.6	40.1	52.6	41 40.10	1 52.712	0 50.00	29.285
	Victoria	18.0	30.3	42.0	42 30.10	2 51.830		
	Weisse, 0.83	44.1	57.1	9.2	43 56.80	1 52.690	0 50.45	29.359
	Victoria		47.2	0.0	44 47.25	2 51.882		
	Weisse, 0.83	28.6	41.0	53.2	47 40.93	1 52.731	0 50.97	29.347
	Victoria	19.7	32.0	44.0	48 31.90	2 51.911		
	Weisse, 0.83	10.9	23.5	36.1	50 23.50	1 52.634	0 50.90	29.383
	Victoria		14.4	27.0	51 14.40	2 51.850		
	Weisse, 0.83	18.0	30.3	42.5	52 30.27	1 52.723	+ 0 50.93	— 29.285
	Victoria	9.2	21.4	33.0	53 21.20	2 51.841		

RESULTS.

Corr. Chron. + 0 m. 4.70 s.

	α h. m. s.	δ ° ′ ″
Weisse, 0.83	0 5 8.24	+ 5 20 47.98

Victoria — Weisse, 0.83

M. T. h. m. s.	Δα m. s.	Δδ ′ ″
8 17 49.14	— 0 20.43	—10 40.48
Δt	— .05	
Δρ	— .00	— .29
p	+ .13	+ 2.54

Corr. Chron. + 0 m. 5.89 s.

	α h. m. s.	δ ° ′ ″
Weisse, 0.83	0 5 8.24	— 5 20 47.80

Victoria — Weisse, 0.83

M. T. h m. s.	Δα m. s.	Δδ ′ ″
6 49 59.64	+ 0 50.78	— 7 30.87
Δt	— .14	
Δρ	— .00	— .19
p	+ .05	+ 2.48

(Continued.)

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Dec. 21	Weisse, 0.83	39.4	52.2	4.4	6 54 52.00	1	52.688	+ 0 51.03	— 29.339
	Victoria	30.9	43.0	55.2	55 43.03	2	51.860		
	Weisse, 0.83	36.2	48.4	1.2	57 48.60	1	52.970	0 51.17	29.230
	Victoria	27.5	39.8	52.0	58 39.77	2	52.033		
	Weisse, 0.83	11.0	24.1	36.5	7 4 23.87	1	53.029	0 51.56	29.200
	Victoria	3.0	15.3	28.0	5 15.43	2	52.062		
	Weisse, 0.83	35.7	48.0	0.3	6 48.00	1	53.012	0 51.57	29.083
	Victoria	27.4	39.3	52.0	7 39.57	2	51.928		
	Weisse, 0.83	21.5	34.0	46.3	10 33.93	1	53.169	0 52.04	28.958
	Victoria	14.0	25.8	38.1	11 25.97	2	51.960		
	Weisse, 0.83	43.2	55.2	8.0	12 55.47	1	53.199	+ 0 52.30	— 28.920
	Victoria	35.2	48.0	0.1	13 47.77	2	51.952		
Dec. 24	Victoria	50.2	3.0	15.0	9 7 2.73	2	37.209		
	Weisse, 0.210	17.0	29.2	41.5	9 29.23	2	24.925	— 2 26.50	— 12.284
	Victoria	56.1	9.1	21.0	12 8.73	2	37.002		
	Weisse, 0.210	22.7	35.1	47.3	14 35.03	2	25.029	2 26.30	11.973
	Victoria	44.2	56.3	9.2	15 56.57	2	36.971		
	Weisse, 0.210	10.3	22.9	35.0	18 22.73	2	24.932	2 26.16	12.039
	Victoria	4.6	17.0	29.2	20 16.93	2	36.860		
	Weisse, 0.210	30.6	42.9	55.0	22 42.83	2	24.819	2 25.90	12.041
	Victoria	44.2	56.9	9.2	24 56.77	2	36.770		
	Weisse, 0.210	9.7	22.5	35.0	27 22.40	2	24.880	2 25.63	11.890
	Victoria	40.2		4.8	28 52.50	2	36.791		
	Weisse, 0.210	5.7	18.4	30.6	31 18.23	2	24.765	2 25.78	12.026
	Victoria	53.2	5.0	18.0	32 5.40	2	36.689		
	Weisse, 0.210	19.1	31.2	43.7	35 31.33	2	24.899	— 2 25.93	— 11.790
Dec. 26	Weisse, 0.210	27.1	39.0	51.0	8 31 39.03	3	45.012	+ 0 8.97	+ 18.669
	Victoria	36.0	48.0	0.0	31 48.00	2	56.255		
	Weisse, 0.210	3.4		28.0	34 15.70	3	44.950	0 8.80	18.613
	Victoria	12.0	25.0	36.5	34 24.50	2	56.249		
	Weisse, 0.210	33.0		58.0	40 45.50	3	44.937	0 8.73	18.598
	Victoria	42.0	54.2	6.5	40 54.23	2	56.251		
	Weisse, 0.210	39.2		4.0	42 51.60	3	44.869	0 8.57	18.638
	Victoria	48.0	0.0	12.5	43 0.17	2	56.143		
	Weisse, 0.210	24.3		49.0	45 36.65	3	45.050	0 9.12	18.712
	Victoria	33.0	46.2	58.1	45 45.77	2	56.250		
	Weisse, 0.210	10.3		35.4	42 28.85	3	44.885	0 8.95	18.698
	Victoria	19.2	32.0	44.2	48 31.80	2	56.099		
	Weisse, 0.210	13.7		9.2	50 56.45	3	45.030	0 8.95	18.725
	Victoria	53.0	5.0	18.2	51 5.40	2	56.217		
	Weisse, 0.210	19.2		14.0	55 31.60	3	44.960	0 9.63	18.943
	Victoria	29.5	41.0	53.2	55 41.23	2	55.929		
	Weisse, 0.210	33.0	46.0	58.0	9 2 45.67	3	44.980	0 9.96	18.934
	Victoria	43.2	55.7	8.0	2 55.63	2	55.958		
	Weisse, 0.210	23.2	36.0	48.0	5 35.73	3	44.910	+ 0 10.07	+ 18.862
	Victoria	33.5	45.7	58.2	5 45.80	2	55.960		

RESULTS.

Dec. 24

Corr. Chron. + 7.31 s.

	α h. m. s.	δ ° ′ ″
Weisse, 0.210,	0 12 24.98	+ 5 27 47.92

Victoria — Weisse, 0.210,	Δ α m. s.	Δ δ ′ ″
M. T. h. m. s. 9 20 18.69	— 2 26.02	— 3 4.52
Δt	— .40	
Δρ	.00	— .11
p	+ .17	+ 2.54

Dec. 26

Corr. Chron. + 8 08 s.

	α h. m. s.	δ ° ′ ″
Weisse, 0.210,	0 12 25.03	+ 5 27 47.77

Victoria — Weisse, 0.210,	Δ α m. s.	Δ δ ′ ″
M. T. h. m. s. 8 51 16.97	+ 0 9.40	+ 4 48.53
Δt	.02	
Δρ	.00	.15
p	+ .16	+ 2.47

(Continued.)

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	w.	revs	m. s.	revs.	
1850. Dec. 26	Weisse, 0.210	14.2	27.0	39.0	9 8 26.73	3	45.150	+ 0 10.34	+ 19.023	
	Victoria	25.0	37.0	49.2	8 37.07	2	56.039			
	Weisse, 0.210	54.1	6.0	19.0	13 6.37	3	44.862	+ 0 10.73	+ 18.864	
	Victoria	4.5	17.1	29.8	13 17.10	2	55.910			
Dec. 27	Weisse, 0.210	7.1	20.0	32.2	6 53 19.77	3	43.242	+ 1 22.56	+ 33.644	
	Victoria	30.0	42.0	55.0	54 42.33	2	39.510			Corr. Chron. s. + 8.78
	Weisse, 0.210	22.9		47.3	59 35.10	3	43.310	1 23.40	33.762	α h. m. s. δ ° ′ ″
	Victoria	46.0	58.5	11.0	7 0 58.50	2	39.460			Weisse, 0.210, 0 12 25.04 + 5 27 47.70
	Weisse, 0.210	12.8	25.0	37.1	3 24.97	3	43.336	1 23.20	33.543	Victoria—Weisse, 0.210, Δα Δδ
	Victoria		48.0	0.5	4 48.17	2	39.705			M. T. h. m. s. m. s. ′ ″
	Weisse, 0.210	32.5	44.2	57.0	6 44.57	3	43.282	1 23.76	33.815	7 16 10.84 + 1 23.91 + 8 40.73
	Victoria	56.0	8.0	21.0	8 8.33	2	39.379			Δt .22
	Weisse, 0.210	34.2	47.1	59.0	9 46.77	3	43.269	1 24.06	33.873	Δρ .00 .22
	Victoria	58.0	11.0	23.5	11 10.83	2	39.308			p + .08 + 2.38
	Weisse, 0.210	28.5	40.7	53.5	12 40.90	3	43.275	1 23.63	33.884	
	Victoria	52.0	4.6	17.0	14 4.53	2	39.303			
	Weisse, 0.210	10.0	22.3	35.0	15 22.43	3	43.220	1 23.90	33.893	
	Victoria	34.0	46.0	59.0	16 46.33	2	39.239			
	Weisse, 0.210	14.5	27.0	39.2	18 26.90	3	43.389	1 23.93	34.019	
	Victoria	38.2	51.3	3.0	19 50.83	2	39.282			
	Weisse, 0.210	8.0	20.3	33.0	24 20.43	3	43.360	1 24.57	33.984	
	Victoria	33.0	45.0	57.0	25 45.00	2	39.288			
	Weisse, 0.210	9.7	22.2	35.1	27 22.33	3	43.389	1 24.75	34.041	
	Victoria	35.0	47.2	59.0	28 47.07	2	39.260			
	Weisse, 0.210	32.5	45.7	57.4	30 45.20	3	43.412	1 24.23	34.115	
	Victoria	57.0	9.3	22.0	32 9.43	2	39.209			
	Weisse, 0.210	36.1	48.3	0.7	7 33 48.37	3	43.420	+ 1 24.96	+ 34.106	
	Victoria	1.0	13.0	26.0	35 13.33	2	39.226			

EGERIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Dec. 24	Weisse I, 501 . .	10.2	23.0	35.2	7 32 22.80	2 15.702	+ 4 14.70	— 8.620
	Egeria	25.0		50.0	36 37.50	2 24.322		
	Weisse I, 501 . .	14.2	27.0	40.2	39 27.13	2 15.780	4 15.10	8.330
	Egeria	30.2	42.0	54.5	43 42.23	2 24.110		
	Weisse I, 501 . .	4.2	16.2	29.2	57 16.53	2 15.795	4 15.27	8.115
	Egeria	19.2	32.0	44.2	8 1 31.80	2 23.910		
	Weisse I, 501 . .	29.1	41.3	54.1	4 41.50	2 15.835	4 15.23	7.975
	Egeria	44.0	57.0	9.2	8 56.73	2 23.810		
	Weisse I, 501 . .	53.2	5.1	18.1	13 5.47	2 16.092	4 15.20	7.709
	Egeria	8.0	21.0	33.0	17 20.67	2 23.801		
	Weisse I, 501 . .	35.0	47.0	0.0	24 47.33	2 16.322	+ 4 15.24	— 7.626
	Egeria	50.2	2.5	15.0	28 2.57	2 23.948		
Dec. 26	Weisse I, 501 . .	8.2	21.0	33.0	6 20 20.73	3 42.493	+ 4 39.84	+ 41.130
	Weisse I, 539 . .		24.0	37.0	22 24.23	1 31.685	2 36.34	— 29.757
	Egeria	48.0	0.7	13.0	25 0.57	2 31.275		
	Weisse I, 501 . .	11.9	24.2	37.2	27 24.43	3 42.359	4 39.44	+ 41.142
	Weisse I, 539 . .	15.0	27.9	40.2	29 27.70	1 31.691	2 36.17	— 29.605
	Egeria	51.5	4.1	16.0	32 3.87	2 31.129		
	Weisse I, 501 . .	47.4	59.0	12.3	33 59.57	3 42.400	4 39.83	+ 41.352
	Weisse I, 539 . .	50.3	3.0	16.0	36 3.10	1 31.692	2 36.30	— 29.435
	Egeria	27.2	39.1	51.9	38 39.40	2 30.960		
	Weisse I, 501 . .	10.4	23.2	36.0	40 23.20	3 42.412	4 39.93	+ 41.490
	Weisse I, 539 . .	14.0	26.5	39.2	42 26.57	1 31.666	2 36.56	— 29.335
	Egeria	50.7	3.0	15.7	45 3.13	2 30.834		
	Weisse I, 501 . .	1.7	14.1	26.6	47 14.13	3 42.370	4 40.27	+ 41.694
	Weisse I, 539 . .	5.0	18.0	30.2	49 17.73	1 31.628	2 36.67	— 29.127
	Egeria	42.0	54.2	7.0	51 54.40	2 30.588		
	Weisse I, 501 . .	39.2	51.7	4.3	54 51.73	3 42.465	4 39.87	+ 41.777
	Weisse I, 539 . .	42.5	55.0	8.1	56 55.20	1 31.638	2 36.40	— 29.129
	Egeria	19.3	31.5	44.0	59 31.60	2 30.600		
	Weisse I, 501 . .	36.1	48.5	1.2	7 2 48.60	3 42.319	4 40.33	— 41.834
	Weisse I, 539 . .	39.6	52.4	5.1	4 52.37	1 31.649	2 36.56	— 28.915
	Egeria	16.5	29.1	41.2	7 28.93	2 30.397		
	Weisse I, 501 . .	44.1	56.5	9.2	8 56.60	3 42.446	4 39.73	+ 42.157
	Weisse I, 539 . .	47.4	59.7	12.7	10 59.93	1 31.556	2 36.40	— 28.812
	Egeria	24.0	36.0	49.0	13 36.33	2 30.201		
	Weisse I, 501 . .	17.2	29.1	42.2	17 29.50	3 42.350	4 39.77	+ 42.061
	Weisse 1, 539 . .	20.0	32.5	45.0	19 32.50	1 31.550	2 36.77	— 28.818
	Egeria	56.8	9.0	22.0	22 9.27	2 30.201		
	Weisse I, 501 . .	41.7	54.2	7.2	24 54.37	3 42.321	4 39.90	+ 42.243
	Weisse I, 539 . .	44.7	57.9	10.4	26 57.67	1 31.662	+ 2 36.60	— 28.495
	Egeria		34.5	47.0	29 34.27	2 29.990		
Dec. 27	Weisse I, 539 . .	19.2	31.2	44.0	5 57 31.47	3 29.050	+ 2 50.40	— 4.450
	Egeria		22.0	34.0	6 0 21.87	3 33.500		
	Weisse I, 539 . .	6.5	19.1	31.7	2 19.10	3 29.092	2 51.27	4.256
	Egeria	58.0	10.0	23.0	5 10.37	3 33.348		
	Weisse I, 539 . .	9.4	22.0	35.0	6 22.13	3 29.089	+ 2 51.30	— 4.125
	Egeria	1.0	13.3	26.0	9 13.43	3 33.214		

RESULTS.

Corr. Chron. m. s. + 0 7.31

	α h. m. s.	δ ° ′ ″
Weisse I, 501,	1 29 11.86	+11 22 35.56

Egeria—Weisse I, 501, M. T. h. m. s.	Δα m. s.	Δδ ′ ″
8 2 49.23	+ 4 15.12	— 2 3.92
Δt	+ .70	
Δρ	.00	— .04
p	+ .04	+ 2.10

Corr. Chron. m. s. + 0 8.08

	α h. m. s.	δ ° ′ ″
Weisse I, 501,	1 29 11.83	+11 22 35.45
539,	1 31 15.76	11 40 44.58

Egeria—Weisse I, 501, M. T. h. m. s.	Δα m. s.	Δδ ′ ″
6 56 38.26	+ 4 39.98	+10 40.74
Δt	+ .77	
Δρ	.00	+ .22
p	— .02	+ 2.06

Egeria—Weisse I, 539, M. T. h. m. s.	m. s.	′ ″
6 56 38.26	+ 2 36.48	— 7 27.92
Δt	+ .33	
Δρ	.00	— .16
p	— .02	+ 2.06

(Continued.)

EGERIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850. Dec. 27	Weisse I, 539 . .	29.7	42.2	55.1	6 10 42.33	3 29.089	+ 2 51.07	— 3.942
	Egeria	21.0	33.2	46.0	13 33.40	3 33.031		
	Weisse I, 539 . .	24.2	37.0	49.6	15 36.93	3 28.979	2 51.17	4.090
	Egeria	16.0	28.0	40.3	18 28.10	3 33.069		
	Weisse I, 539 . .	34.0	46.0	59.1	19 46.37	3 29.087	2 51.73	3.792
	Egeria	26.0	38.0	50.3	22 38.10	3 32.879		
	Weisse I, 539 . .	27.3	39.5	52.0	24 39.60	3 29.110	2 51.10	3.840
	Egeria	18.0	31.0		27 30.70	3 32.950		
	Weisse I, 539 . .	24.2	37.0	49.3	29 36.83	3 29.049	+ 2 51.57	— 3.802
	Egeria	16.0	28.2	41.0	32 28.40	3 32.851		

RESULTS.

Corr. Chron. m. s. + 0 8.78

	α	δ
	h. m. s.	° ′ ″
Weisse I, 539,	1 31 15.74	+11 40 44.57

Egeria—Weisse I, 539, M. T.	Δ α	Δ δ
h. m. s.	m. s.	′ ″
6 16 19.03	+ 2 51.20	— 1 2.35
Δ t	+ .47	
Δ ρ	.00	— .02
p	— .06	+ 2.05

VENUS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850. Oct. 19	Venus, N. P.	9.5	23.4	37.2	6 3 23.36			
	30556, Lalande		13.2	27.1	4 13.21	2 28.280		
	Venus, N. P.	18.7	32.4	46.2	6 32.43	2 46.345		
	30556, Lalande	7.1	20.9	35.3	7 21.10	2 30.805	— 0 48.67	— 15.540
	Venus, S. P.	49.2	3.2	17.1	10 3.16	2 48.421		
	30556, Lalande		51.3	5.3	10 51.31	2 30.062	0 48.15	18.359
	Venus, N. P.	22.9	36.2	50.0	12 36.36	2 45.274		
	30566, Lalande	10.3	24.2	38.0	13 24.16	2 29.501	0 47.80	15.773
	Venus, S. P.	36.0	49.7	3.9	15 49.86	2 47.522		
	30556, Lalande		38.2	51.7	16 38.36	2 29.086	0 48.50	18.436
	Venus, N. P.	52.3	6.5	20.5	17 6.43	2 44.479		
	30556, Lalande	39.2	53.1	6.8	18 53.03	2 28.548	0 46.60	15.931
	Venus, S. P.	36.0	49.8	4.1	21 49.96	2 46.140		
	30556, Lalande		36.3	50.5	22 36.41	2 27.552	0 46.45	18.588
	Venus, N. P.	2.1	16.0	29.5	24 15.86	2 42.897		
	30556, Lalande		2.0	15.4	25 1.81	2 26.651	— 0 45.95	— 16.246
Oct. 21	Venus, S. P.	41.3	55.0	8.7	5 54 55.00	2 37.338		
	A. Z., 214, 54		26.0	40.0	56 26.15	2 43.950	— 1 31.15	+ 6.612
	A. Z., 214, 56		19.1	32.7	57 19.05	3 30.376		
	*Venus, N. P.	33.0	46.4	0.3	59 6.56	2 34.670		
	A. Z., 214, 54	23.3	37.0	51.0	6 0 37.10	2 43.300	1 30.54	8.630
	A. Z., 214, 56	16.0	29.3	43.3	1 29.53	3 29.722		
	Venus, S. P.	49.1	2.7	16.2	4 2.67	2 36.014		
	A. Z., 214, 54	18.2	32.4	46.0	5 32.20	2 42.452	1 29.53	6.438
	A. Z., 214, 56		25.5	39.0	6 25.25	3 28.902		
	Venus, N. P.	19.2	32.8	47.2	8 33.06	2 32.960		
	A. Z., 214, 54	49.0	3.0	16.2	10 2.73	2 41.791	1 29.67	8.831
	A. Z., 214, 56	42.1	55.8	9.2	11 55.70	3 27.950		
	Venus, S. P.	29.1	43.2	57.2	12 43.16	2 33.753		
	A. Z., 214, 54	58.0	12.5	26.0	14 12.16	2 39.771	1 29.00	6.018
	A. Z., 214, 56	51.3	5.0	19.1	15 5.13	3 27.140		
	Venus, N. P.	28.2	42.1	56.2	16 42.16	2 31.500		
	A. Z., 214, 54	55.9	10.0	24.5	18 10.13	2 40.000	1 27.97	8.500
	A. Z., 214, 56	49.6	3.2	17.0	19 3.26	3 26.296		
	Venus, S. P.	10.3	24.2	38.1	21 24.20	2 32.841		
	A. Z., 214, 54		51.0	5.0	22 51.05	2 38.565	1 26.85	5.724
	A. Z., 214, 56		45.0	58.0	23 44.55	3 24.918		
	Venus, N. P.	0.4	14.1	28.2	26 14.23	2 29.000		
	A. Z., 214, 54	27.1	41.2	55.0	27 41.10	2 36.915	— 1 26.87	+ 7.915
	A. Z., 214, 56		33.4	47.5	28 33.45	3 23.472		

RESULTS.

Oct. 19

Corr. Chron. + 0 m. 35 s. 56

	α h. m. s.	δ ° ′ ″
30556, Lalande,	16 40 56.10	—26 28 27.61

Venus, N. P.—30556, Lalande.

M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
6 15 43.33	— 0 47.55	— 4 03.97
Δ t	.13	
Δ ρ —	.08	— 1.64
p +	.67	+ 11.62
Semi-d. +	1.06	— 15.85

Venus, S. P.—30556, Lalande.

M. T. h. m. s.	m. s.	′ ″
6 16 29.88	— 0 47.70	— 4 43.76
Δ t	.13	
Δ ρ —	.09	— 1.91
p +	.67	+ 11.52
Semi-d. +	1.06	+ 15.85

Planet undefined.—A. 5.

Therm. Int. 59.2° Ex. 50.5

Oct. 21

Corr. Chron. + 0 m. 29 s. 46

	α h. m. s.	δ ° ′ ″
A. Z., 214, 54	16 49 12.61	—26 52 20.80

Venus, S. P.—A. Z., 214, 54,

M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
6 10 14.85	— 1 29.13	+ 1 34.26
Δ t —	.24	
Δ ρ +	.03	.50
p	.69	12.09
Semi-d. +	1.11	+ 16.59

Venus, N. P.—A. Z., 214, 54.

M. T. h. m. s.	m. s.	′ ″
6 13 8.46	— 1 28.76	+ 2 10.18
Δ t —	.24	
Δ ρ +	.04	.81
p	.70	+ 12.67
Semi-d. +	1.11	— 16.59

Stars dim, and planet undefined and blurred.—A. 6.

In. Bar. 29.90 Therm. Att. 72.0° Int. 55.5 Ex. 49.5

* The recorded reading here is corrected in the mean, it being evidently 40 seconds too large.

VENUS.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
50.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
22	Venus, N. P.	22.9	36.9	50.9	5 44 36.90	2 41.029		
	A. Z., 388, 85			26.5	45 12.58	2 52.419	— 0 35.68	+ 11.390
	Venus, S. P.	22.1	35.9	49.8	48 35.93	2 43.010		
	A. Z., 388, 85			25.0	49 11.08	2 51.985	0 35.15	8.975
	Venus, N. P.	26.3		54.1	51 40.20	2 40.391		
	A. Z., 388, 85			29.1	52 15.18	2 51.582	0 34.98	11.191
	Venus, S. P.	59.5	12.9	27.5	54 13.30	2 42.311		
	A. Z., 388, 85			3.0	54 49.08	2 51.497	0 35.78	9.096
	Venus, N. P.	36.1	49.5	4.0	57 49.87	2 39.629		
	A. Z., 388, 85		23.1	37.2	58 23.27	2 50.779	0 33.40	11.150
	Venus, S. P.	45.2	59.0	12.9	59 59.03	2 41.619		
	A. Z., 388, 85			45.5	6 0 31.58	2 50.499	0 32.55	8.880
	Venus, N. P.	12.5	26.2	39.7	6 2 26.13	2 39.104		
	A. Z., 388, 85		59.1	12.4	2 58.93	2 50.058	0 32.80	10.954
	Venus, S. P.	12.0	26.1	39.7	4 25.93	2 41.052		
	A. Z., 388, 85			12.0	4 58.08	2 49.808	0 32.15	8.756
	Venus, N. P.	24.0	37.9	52.0	6 37.97	2 38.300		
	A. Z., 388, 85			24.0	7 10.08	2 49.289	— 0 32.11	+ 11.989
28	Venus, S. P.	4.1	18.0	32.1	5 50 18.07	2 35.835		
	A Z, 388, 115		46.1	0.0	50 46.07	1 42.298	— 0 28.00	— 23.484
	Venus, N. P.	22.0	36.1	49.5	53 35.87	2 33.083		
	A. Z., 388, 115		4.5	18.1	54 4.37	1 42.039	0 28.50	20.991
	Venus, S. P.	15.9	30.0		56 29.96	2 35.178		
	A. Z., 388, 115			2.5	56 48.71	1 41.652	0 28.75	23.473
	Venus, N. P.	32.9	47.0	0.9	58 46.93	2 32.469		
	A. Z., 388, 115			28.2	59 14.41	1 41.310	0 27.48	21.106
	Venus, S. P.	6.2	20.0	34.0	6 1 20.07	2 34.340		
	A. Z, 388, 115			1.0	1 47.21	1 40.962	0 27.14	23.325
	Venus, N. P.	52.0	6.0	19.2	6 3 5.73	2 31.678		
	A. Z., 388, 115			46.5	3 32.71	1 40.419	— 0 26.98	— 21.206

RESULTS.

Corr. Chron. + 0 m. 29.38 s.

	α h. m. s.	δ ° ′ ″
A. Z., 388, 85,	16 52 0.01	—27 1 13.72

Venus, S. P.—A. Z., 386, 85,

M. T. h. m. s.		Δ α m. s.		Δ δ ′ ″
5 57 39.10	—	0 33.91	+	2 17.26
Δt	—	.09		
Δρ	+	.02		.40
p		.66		12.38
Semi-d.	+	1.13	+	16.98

Venus, N. P.—A. Z., 388, 85.

M. T. h m. s.		m. s.		′ ″
5 57 7.59	—	0 33.79	+	2 53.92
Δt	—	.09		
Δρ	+	.03		.51
p		.66	+	12.38
Semi-d.	+	1.13	—	16.98

The night tolerable. The temperatures on the outside and inside of the dome nearly equal, being 62° and 63°; still the disc of the planet tremulous, and not measurable within 10 seconds.—A. 7.

In.		°
Bar. 29.964	Therm. Att.	75.0
	Int.	63.0
	Ex.	62.0

Corr. Chron. + 23.98 s.

	α h. m. s.	δ ° ′ ″
A. Z., 388, 115,	17 13 23.09	—27 31 20.44

Venus, S. P.—A. Z., 388, 115,

M. T. h. m. s.		Δ α m. s.		Δ δ ′ ′
5 56 51.31	—	0 27.96	—	6 0.11
Δt		.08		
Δρ	—	.12	—	2.11
p	+	.74	+	13.57
Semi-d.	+	1.23	+	19.35

Venus, N. P.—A. Z., 388, 115.

M. T. h. m. s.		m. s.		′ ″
5 58 53.49	—	0 27.65	—	5 24.35
Δt		.68		
Δρ	—	.09	—	1.90
p	+	.75	+	13.57
Semi-d.	+	1.23	—	19.35

Night clear and serene. Observations unsatisfactory.—A. 8.

In.		°
Bar. 30.100	Therm. Att.	70.0
	Int.	67.5
	Ex.	55.0

VENUS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Oct. 29	Venus, S. P.		51.0		5 54 50.82	3 33.662			in. °
	(° 8)		15.0		55 14.82	1 37.391	— 0 24.00	+ 56.360	A. 8 Bar. 30.210. Ther. Att. 70. Int. 55. Ex. 49.
	Venus, S. P.	7.0	21.0		57 20.82	3 33.552			
	(° 8)			59.0	57 45.16	1 36.822	0 24.34	56.819	
	Venus, N. P.	48.2	2.0		59 1.82	3 30.488			Observations unsatisfactory.
	(° 8)			40.0	59 26.16	1 36.502	— 0 24.34	+ 54.075	
	(° 9)	1.5	16.2	29.7	6 2 15.80	2 46.030	+ 0 57.13	— 15.906	
	Venus, S. P.	59.0	12.9	26.9	3 12.93	3 31.989			
	(° 9)	45.0	59.0	12.5	4 58.83	2 45.469	+ 0 57.95	— 13.428	
	Venus, N. P.	42.9			5 56.78	3 28.950			
									m. s. Corr. Chron. + 0 21.72
Nov. 1	Venus, S. P.	47.1	1.0	15.2	5 28 1.10	2 33.199			α δ
	La Caille, 7371	33.1	47.0	1.3	30 47.13	2 51.562	— 2 46.03	+ 18.363	h. m. s. ° ′ ″ 7371, La Caille, 17 28 47.97 —27 56 55.09
	Venus, N. P.	38.3	52.5	7.0	32 52.60	2 30.160			Venus, S.P.—7371, La Caille, Δ α Δ δ
	La Caille, 7371	23.5	38.3	52.1	35 37.96	2 50.945	2 45.36	20.785	M. T. h. m. s. m. s. ′ ″
	Venus, S. P.	17.2	31.0	45.0	40 31.06	2 32.042			5 45 16.04 — 2 43.99 + 4 40.92
	La Caille, 7371	1.3	15.5	29.7	43 15.50	2 50.375	2 44.44	18.333	Δ t — .45
	Venus, N. P.	56.9		25.0	46 10.95	2 28.975			Δ ρ + .07 + 1.37
	La Caille, 7371	40.7	55.0	8.9	48 54.53	2 49.862	2 43.58	20.887	ρ + .76 + 14.58
									Semi-d. + 1.31 + 20.54
	Venus, S. P.	24.2	37.9	52.2	50 38.10	2 30.649			Venus, N.P.—7371, La Caille.
	La Caille, 7371		21.7	35.5	53 21.65	2 48.838	2 43.55	18.189	M. T. h. m. s. m. s. ′ ″
	Venus, N. P.	48.7		16.8	55 2.75	2 27.247			5 50 15.06 — 2 43.49 + 5 19.21
	La Caille, 7371	31.9	45.9	59.7	57 45.83	2 48.077	2 43.08	20.830	Δ t — .45
	Venus, S. P.	13.0	27.1	41.0	6 0 27.03	1 58.858			Δ ρ + .08 + 1.57
	La Caille, 7371	55.0	9.0	23.0	3 9.00	2 46.937	2 41.97	18.221	ρ + .76 + 14.42
	Venus, N. P.	13.1	27.1	41.0	5 27.06	1 55.219			Semi-d. + 1.31 — 20.54
	La Caille, 7371	55.0	19.0	23.0	8 9.00	2 45.640	— 2 41.94	+ 20.563	in. ° Brown base, A. 8. Bar. 30.210. Ther. Att. 70. Int. 62. Ex. 59.
Nov. 2	7371, La Caille					2 39.061		+ 8.669	
	Venus, S.		20.0		5 25 20.00	2 30.392			
	7371, La Caille					2 39.000		11.621	
	Venus, N.		40.0		26 40.00	2 27.379			
	7371, La Caille					2 38.839		+ 9.068	
	Venus, S.		20.0		27 20.00	2 29.771			

(Continued.)

VENUS.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
50.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
2	7371, La Caille					2 38.745		+ 11.584	
	Venus, N.		10.0		5 29 10.00	2 27.161			
	7371, La Caille	13.2	27.0	41.3	30 27.16		+ 0 20.04		
	Venus, P.	33.2	47.2	1.2	30 47.20				
	7371, La Caille	53.5	7.7	21.5	32 7.56		0 20.47		
	Venus, P.	14.3	27.9	41.9	32 28.03				
	7371, La Caille	13.2	27.2	41.4	33 27.26		0 20.50		Corr. Chron. m. s. + 0 20.57
	Venus, P.	33.7	47.9	1.7	34 47.76				
	7371, La Caille					2 38.051		9.229	α h. m. s. δ ° ′ ″
	Venus, S.		52.0		38 52.00	2 28.822			7371, La Caille, 17 28 47.96 —27 56 55.05
	7371, La Caille					2 38.075		11.853	Venus, P—7371, La Caille, Δ α
	Venus, N.		5.0		40 5.00	2 26.222			M. T. h. m. s. m. s.
	7371, La Caille					2 37.629		9.008	5 44 50.88 + 0 22.03
	Venus, S.		42.0		41 42.00	2 28.621			Δ t + .06
	7371, La Caille					2 37.436		11.669	Δ ρ — .04
	Venus, N.		27.0		42 27.00	2 25.767			p + .77
	7371, La Caille					2 36.935		8.906	Semi-d. + 1.33
	Venus, S.		3.0		46 3.00	2 28.029			Venus, S.—7371, La Caille, Δ δ
	7371, La Caille					2 36.872		11.591	M. T. h. m. s. ′ ″
	Venus, N.		7.0		47 7.00	2 25.281			5 41 49.95 + 2 18.05
	7371, La Caille					2 36.572		9.071	Δ ρ .56
	Venus, S.		40.0		48 40.00	2 27.501			p 14.81
	7371, La Caille					2 36.412		11.652	Semi-d. + 20.93
	Venus, N.		6.0		50 6.00	2 24.760			Venus, N.—7371, La Caille. M. T. h. m. s.
	7371, La Caille	57.1	11.5	24.9	52 11.16		0 23.54		5 44 16.27 + 2 58.40
	Venus, P.	20.8	34.7	48.6	52 34.70				Δ ρ .84
	7371, La Caille	29.8	44.6	57.9	53 44.10		0 23.10		p + 14.80
	Venus, P.	53.1	7.3	21.2	54 7.20				Semi-d. — 20.93
	7371, La Caille					2 35.483		8.985	A. 8.
	Venus, S.		41.0		55 41.00	2 26.498			In. ° Bar. 30.225. Ther. At. 69
	7371, La Caille					2 35.199		11.500	Int. 59.8
	Venus, N.		59.0		56 59.00	2 23.699			Ex. 61
	7371, La Caille					2 34.887		8.916	
	Venus, S.		17.0		58 17.00	2 25.971			
	7371, La Caille					2 34.585		+ 11.364	
	Venus, N.		52.0		58 52.00	2 23.221			
	7371, La Caille	38.5	52.7	6.2	6 1 52.47		+ 0 24.53		
	Venus, P.	2.9	17.1	31.0	2 17.00				
4	Venus	--	--	--	- - - -	- - -	- - -	- - -	Before the instrument could be pointed at the planet the sky became hazy.
5	(° 9.5)	56.0		24.0	5 49 10.00	2 36.728	+ 1 52.10	+ 4.630	Planet wavy and uncertain. A. 8.
	Venus, S. P.	48.1	2.0	16.2	51 2.10	2 32.098			
	(° 9.5)	50.2		19.0	53 4.60	2 36.720	+ 1 52.67	+ 7.081	
	Venus, N. P.	43.1	57.2	11.5	54 57.27	2 29.639			
	(°)		52.5	6.5	6 0 52.42	2 40.642			

VENUS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Nov. 9	6063, B. A. C.	38.1	52.2	6.0	5 24 52.10	3 28.106	+ 1 7.85	+ 18.764
	Venus, S. P.	45.8		14.1	25 59.95	2 39.102		
	6063, B. A. C.	2.4	15.8	30.4	29 16.20	3 26.778	1 8.15	21.736
	Venus, N. P.	10.7		38.0	30 24.35	2 34.924		
	6063, B. A. C.	43.3	56.9	11.0	35 57.06	3 26.817	1 8.14	18.665
	Venus, S. P.	50.9	5.5	19.2	37 5.20	2 38.022		
	6063, B. A. C.	39.2	53.5	8.1	38 53.60	3 26.358	1 8.57	21.766
	Venus, N. P.	48.2	2.3	16.0	40 2.17	2 34.462		
	6063, B. A. C.	12.0	26.1	39.5	43 25.86	3 25.589	1 9.41	18.669
	Venus, S. P.	21.3	35.5	49.0	44 35.27	2 36.790		
	6063, B. A. C.	46.5	0.4	14.5	46 0.47	3 25.192	+ 1 9.66	+ 21.890
	Venus, N. P.	56.2	10.2	24.0	47 10.13	2 33.172		
Nov. 10	6063, B. A. C.	39.6	53.1	7.5	5 1 53.40	3 31.041	+ 3 25.70	+ 25.722
	Venus, S. P.	5.2	19.0	33.1	5 19.10	2 35.189		
	6063, B. A. C.	56.0	9.7	24.1	7 9.93	3 30.690	3 27.00	27.765
	Venus, N. P.	22.9	37.0	50.9	10 36.93	2 32.795		
	6063, B. A. C.	25.0	39.2	55.7	13 39.96	3 30.068	3 26.04	24.939
	Venus, S. P.	52.1	6.0	19.9	17 6.00	2 34.999		
	6063, B. A. C.	49.2		18.2	19 3.70	3 29.579	3 28.26	27.880
	Venus, N. P.	18.0	31.9	46.0	22 31.96	2 31.569		
	6063, B. A. C.	12.1	26.2	40.3	30 26.20	3 28.537	+ 3 29.70	+ 25.079
	Venus, S. P.	41.9	55.8	10.0	33 55.90	2 33.328		
	(°)	23.0	37.0	50.8	35 36.93	1 49.238		
	Venus, N. P.	2.0	16.2	31.0	37 16.40	2 29.982		
	(°)	43.1	57.2	11.0	38 57.10	1 48.710		
	(° 7.8)		59.5	14.5	40 0.00	1 37.809	— 2 43.60	— 22.392
	Venus, S. P.	28.9	42.7	56.7	41 42.76	2 32.050		
	(°)	8.5	22.1	36.0	43 22.20	1 48.116		
	(° 7.8)		25.0	39.0	44 25.15	1 37.374	2 42.39	24.895
	Venus, N. P.	12.2		40.0	46 26.10	2 28.269		
	(°)	52.0	5.0	19.2	48 5.40	1 47.245		
	(° 7.8)		8.7	22.2	49 9.15	1 36.430	— 2 43.05	— 22.058

RESULTS.

Nov. 9

Corr. Chron. + 0 m. 14.51 s.

	α h. m. s.	δ ° ′ ″
6063, B. A. C.	17 47 15.72	—28 2 2.61

Venus, S. P.—6063, B. A. C.

	M. T. h. m. s.	Δα m. s.	Δδ ′ ″
	5 36 7.98	+ 1 8.47	+ 4 47.98
	Δt	.19	
	Δρ	.07	1.42
	p	.95	18.16
	Semi-d. +	1.36	+ 24.09

Venus, N. P.—6063, B. A. C.

	M. T. h. m. s.	m. s.	′ ″
	5 39 26.73	+ 1 8.79	+ 5 35.06
	Δt	.19	
	Δρ	.08	1.66
	p	1.02	+ 17.96
	Semi-d. +	1.36	— 24.09

Planet deformed and tremulous. A. 7.

In. Bar. 30.21. Ther. At. 74 ° Int. 54 Ex. 47

Nov. 10

Corr. Chron. + 0 m. 13.07 s.

	α h. m. s.	δ ° ′ ″
6063, B. A. C.	17 47 15.71	—28 2 2.58

Venus, S. P.—6063, B. A. C.

	M. T. h. m. s.	Δα m. s.	Δδ ′ ″
	5 19 0.07	+ 3 27.16	+ 6 28.09
	Δt	.56	
	Δρ	.09	1.84
	p	.81	17.20
	Semi-d. +	1.51	+ 24.48

Venus, N. P.—6063, B. A. C.

	M. T. h. m. s.	m. s.	′ ″
	5 16 47.51	+ 3 27.63	+ 7 7.66
	Δt	.56	
	Δρ	.09	1.93
	p	.81	+ 17.20
	Semi-d. +	1.51	— 24.48

The four first comparisons taken without illumination are good; the rest unsatisfactory. A. 9.

In. Bar. 30.15. Ther. At. 71 ° Ex. 41

VENUS.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
0.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
13	A. Z, 233, 38 - -	56.2	10.2	23.9	5 20 10.10	2 43.569	+ 1 7.90	+ 8.191
	Venus, S. P. - - -		18.0	31.9	21 18.00	2 35.378		
	A. Z., 233, 38 - -	29.1	43.2	57.0	22 43.10	2 43.088	1 8.23	10.935
	Venus, N. P. - - -	37.2	50.9	5.9	23 51.33	2 32.153		
	A. Z., 233, 38 - -	44.9	59.3	13.7	26 59.30	2 42.960	1 8.10	8.212
	Venus, S. P. - - -	53.1	7.2	21.9	28 7.40	2 34.748		
	A. Z., 233, 38 - -	54.7	8.4	22.8	31 8.63	2 42.400	1 8.33	11.209
	Venus, N. P. - - -	3.0	17.0	30.9	32 16.96	2 31.191		
	A. Z., 233, 38 - -	41.4	55.3	9.6	33 55.43	2 41.975	1 8.53	8.165
	Venus, S. P. - - -	50.0	3.9	18.0	35 3.96	2 33.810		
	A. Z., 233, 38 - -	20.0	34.2	48.6	36 34.26	2 41.548	1 8.77	11.212
	Venus, N. P. - - -	29.2	43.0	56.9	37 43.03	2 30.336		
	A. Z., 233, 38 - -	23.0	37.2	51.4	39 37.20	2 41.088	1 9.10	8.370
	Venus, S. P. - - -	32.5	46.1	0.3	40 46.30	2 32.718		
	A. Z, 233, 38 - -	51.2	6.7	19.0	42 5.63	2 40.502	+ 1 8.20	+ 11.140
	Venus, N. P. - - -	59.5	14.1	27.9	43 13.83	2 29.358		
14	Venus, S. P. - - -	27.5	41.6	56.0	5 12 41.70	2 30.990		
	A. Z., 223, 46 - -	24.1	38.3	52.1	13 38.17	2 32.599	− 0 56.47	+ 1.609
	Venus, N. P. - - -	52.0	5.9	20.1	15 6.00	2 27.800		
	A. Z., 223, 46 - -	48.9	3.0	17.0	16 2.96	2 32.300	0 56.96	4.500
	Venus, S. P. - - -	24.1	38.3	52.0	17 38.13	2 30.388		
	A. Z., 223, 46 - -	21.0	34.7	49.0	18 34.90	2 32.080	0 56.77	1.692
	Venus, N. P. - - -	27.0	40.9	55.0	19 40.96	2 27.200		
	A. Z, 223, 46 - -	24.1	37.0	52.0	20 37.70	2 31.850	0 56.74	4.650
	Venus, S. P. - - -	23.1	36.9	51.0	29 37.00	2 28.931		
	A. Z, 223, 46 - -	19.1	33.0	47.9	30 33.33	2 30.942	0 56.33	2.011
	Venus, N. P. - - -	53.0	6.2	19.7	32 6.30	2 25.631		
	A. Z., 223, 46 - -	48.2	2.5	16.9	33 2.53	2 30.542	0 56.23	4.891
	Venus, S. P. - - -	49.7	3.2	17.0	36 3.30	2 28.201		
	A. Z., 223, 46 - -		59.3	13.3	36 59.50	2 30.149	0 56.20	1.948
	Venus, N. P. - - -	20.0	34.0	48.2	5 37 34.06	2 24.695		
	A. Z., 223, 46 - -	16.1	29.7	43.6	38 29.80	2 29.688	− 0 55.74	+ 4.993

RESULTS.

Corr. Chron. + 0 12.53 s.

	α h. m. s.	δ ° ′ ″
A. Z., 233, 38,	17 55 55.12	−27 50 5.53

Venus, S. P.—A. Z., 233, 38, Δ α Δ δ

M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
5 31 31.44	+ 1 8.41	+ 2 6.57
Δ t	.19	
Δ ρ	.03	.68
p	.93	17.48
Semi-d.	+ 1.58	+ 25.67

Venus, N. P.—A. Z., 233, 38.

M. T. h. m. s.	m. s.	′ ″
5 34 28.82	+ 1 8.39	+ 2 50.99
Δ t	.19	
Δ ρ	.04	.91
p	.94	+ 17.48
Semi-d.	+ 1.58	− 25.67

The two first comparisons made without illumination; the night clear and serene. All the circumstances favorable, except the inequality of the exterior and interior temperatures; which could not have been reduced, all the doors and windows of the dome having been kept open during the whole day.—A. 8.

In.		°
Bar. 30.04	Therm. At.	71
	Int.	55
	Ex.	45

Corr. Chron. + 0 12.10 m. s.

	α h. m. s.	δ ° ′ ″
A. Z., 233, 46,	17 59 51.27	−27 44 58.03

Venus, S. P.—A. Z., 233, 46, Δ α Δ δ

M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
5 24 12.13	− 0 56.44	+ 0 27.94
Δ t	− .15	
Δ ρ	+ .01	.13
p	.92	18.00
Semi-d.	+ 1.61	+ 26.06

Venus, N. P—A. Z., 233, 46.

M. T. h. m. s.	m. s.	′ ″
5 26 18.83	− 0 56.42	+ 1 13.15
Δ t	− .15	
Δ ρ	+ .02	.34
p	.93	+ 18.00
Semi-d.	+ 1.61	− 26.06

A. 9.

In.		°
Bar. 30.08	Therm. At.	75
	Int.	57
	Ex.	52

VENUS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850. Nov. 18	Venus - - - - -	--	--	--	- - -	- - -	- - -	- - -
Nov. 21	Venus, S. P.	33.9	48.0	1.9	4 48 47.93	2 35.480		
	6194, B. A. C.		41.2	55.1	49 41.13	2 28.091	— 0 53.20	— 7.389
	Venus, N. P.	39.6	53.9	7.5	50 53.67	2 32.838		
	6194, B. A. C.		45.8	0.1	51 45.92	2 28.014	0 52.25	4.824
	Venus, S. P.	53.2	7.1	21.0	53 7.10	2 35.020		
	6194, B. A. C.	46.0	0.1	14.0	54 0.03	2 27.633	0 52.93	7.387
	Venus, N. P.	2.0	16.1	29.8	56 15.96	2 32.239		
	6194, B. A. C.		8.7	22.7	57 8.71	2 27.415	0 52.75	4.824
	Venus, S. P.	37.2	51.0	4.9	59 51.36	2 35.101		
	6194, B. A. C.	29.2	43.5	57.6	5 0 43.43	2 27.080	0 52.07	8.021
	Venus, N. P.	45.9	59.5	13.9	2 59.76	2 31.427		
	6194, B. A. C.	38.2	52.3	6.0	3 52.16	2 26.788	0 52.40	4.639
	Venus, S. P.	54.9	8.7	23.0	4 8.86	2 34.534		
	6194, B. A. C.	47.8	1.5	15.7	5 1.66	2 26.550	0 52.80	7.984
	Venus, N. P.	0.9	14.8	38.4	6 14.70	2 30.901		
	6194, B. A. C.	53.3	7.1	20.0	7 6.80	2 26.216	0 52.10	4.685
	Venus, S. P.	57.5	11.2	25.8	10 11.50	2 33.799		
	6194, B. A. C.		3.7	17.9	11 3.80	2 25.992	0 52.30	7.807
	Venus, N. P.	4.9	18.0	32.5	11 18.47	2 30.208		
	6194, B. A. C.		10.8	24.2	12 10.72	2 25.801	0 52.25	4.407
	Venus, S. P.	18.7	32.7	46.9	13 32.76	2 33.249		
	6194, B. A. C.		24.3	38.5	14 24.26	2 25.449	0 51.50	7.800
	Venus, N. P.	19.4	33.0	47.5	16 33.30	2 29.309		
	6194, B. A. C.		25.2	39.1	17 25.20	2 25.018	0 51.90	4.291
	Venus, S. P.	11.9	25.9	39.2	19 25.67	2 32.282 *		
	6194, B. A. C.	4.2	18.3	32.2	20 18.23	2 24.551	0 52.56	7.731
	Venus, N. P.	21.2	35.0	49.2	21 35.13	2 28.498		
	6194, B. A. C.		27.1	41.2	22 27.18	2 24.242	0 52.05	4.256
	Venus, S. P.	58.1	11.9	36.1	24 12.03	2 31.330		
	6194, B. A. C.	49.3	3.3	17.0	25 3.20	2 23.639	0 51.17	7.691
	Venus, N. P.	20.0	34.2	48.0	26 34.06	2 27.342		
	6194, B. A. C.		24.9	39.3	27 25.06	2 23.234	0 51.00	4.108
	Venus, S. P.	20.0	34.1	48.0	31 34.03	2 29.892		
	6194, B. A. C.	11.9	25.2	39.5	32 25.53	2 22.432	0 56.50	7.460
	Venus, N P.	44.8	59.1	12.5	34 58.80	2 25.845		
	6194, B. A. C.		50.2	4.2	35 50.20	2 22.049	0 51.40	3.796
	Venus, S. P.	52.1	6.2	20.0	38 6.10	2 27.970		
	6194, B. A. C.	43.2	57.1	11.4	39 57.23	2 20.571	0 51.13	7.399
	Venus, N. P.	21.0	35.0	48.9	40 34.96	2 23.642		
	6194, B. A C.		26.0	40.2	41 26.11	2 19.841	0 51.15	3.801
	Venus, S. P.	52.9	7.1	21.0	5 43 7.00	2 26.311		
	6194, B. A. C.		57 2	11.2	43 57.15	2 19.284	— 0 50.15	— 7.027

RESULTS.

A. 4.—The planet deformed and tremulous; observations impossible.

Corr. Chron. + 0 s. 9.24

	α h. m. s.	δ ° ′ ″
6194, B. A. C.	18 8 40.92	—27 5 22.96

Venus, S. P.—6194, B. A. C.

M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″
5 15 15.09	— 0 51.91	— 1 56.96
Δ t	— .14	
Δ p	+ .03	+ .56
p	1.07	19.89
Semi-d.	+ 1.81	+ 27.32

Venus, N. P.—6194, B. A. C.

M. T. h. m. s.	m. s.	′ ″
5 14 57.12	— 0 51.92	— 1 7.07
Δ t	— .14	
Δ p	+ .02	+ .32
p	1.07	+ 19.89
Semi-d.	+ 1.81	— 27.32

Night clear and serene.—A. 8.

In.		°
Bar. 29.99	Therm. At.	74.0
	Int.	46.8
	Ex.	41.0

* Recorded 31.282.

VENUS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Nov. 24	Venus, N. P. . .	59.3	13.3	27.6	5 2 13.40	2 37.260			In. °
	(°)	9.0	23.2	37.0	11 23.06	2 30.700	— 9 9.60	— 6.560	A. 9. Bar. 30.050 Therm. At. 74.0
									Int. 46.0
	Venus, S. P. . .	35.0	48.7	3.0	5 15 48.90	2 31.658			Ex. 49.5
	(°)	55.5	9.0	23.0	24 9.16	2 29.162	— 8 20.26	— 2.496	The planet wavy and uncertain; lost in clouds.
Nov. 30	Venus	--	--	--	. . .	. . .	. . .	. . .	Observations were attempted, but before any stars showed themselves the planet became deformed and flaming. It is evident, from the observations of the 24th and of to night, that at the altitude which Venus can be observed at present it will be impossible to make any comparisons available for the determination of parallax. From November 30 to December 7, an almost uninterrupted rain.

FOR THE VALUE OF A REVOLUTION OF THE MICROMETER SCREW.

Feb. 5. 20 Tauri — η Tauri.

	Hour circle.	Mic.	Δ mic.
	h. m.		
20 Tauri	2 44.3	1 38.708	
η Tauri		3 39.108	+ 0.400
	2 48.0	1 38.845	
		3 39.118	0.266
	2 51.4	1 38.931	
		3 39.149	0.218
	54.3	1 38.940	
		3 39.055	0.115
	57.0	1 38.946	
		3 39.075	0.129
	59.3	1 38.912	
		3 39.155	0.243
	3 2.1	1 38.982	
		3 39.291	0.309
	6.1	1 38.740	
		3 39.247	0.507
	9.3	1 38.930	
		3 39.100	0.170
	12.0	1 39.023	
		3 39.292	0.269
	17.7	1 39.058	
		3 39.250	0.192
	20.3	1 39.210	
		3 39.306	0.096
	23.6	1 39.120	
		3 39.259	0.139
	26.3	1 39.151	
		3 39.357	0.206
	28.7	1 39.088	
		3 39.342	0.254
	31.0	1 39.130	
		3 39.330	0.200
	33.8	1 39.171	
		3 39.328	+ 0.157

	h. m.	r.
Hour angle	3 9.2 E	+ 0.222
Interval	3 — 1.	60.080
		60.302

	′ ″
Δδ 1840 - - - -	15 26.209
Δp - - +	1.314
Δm - - +	.060
Δρ - - —	.319
Δδ 1850, Feb. 15,	27.264

Rev. = 15″.3770.

March 8. 20 Tauri — η Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
20 Tauri	5 23.0	1 41.195	
η Tauri		3 41.410	+ 0.215
	5 26.0	1 41.191	
		3 41.423	0.232
	29.0	1 41.210	
		3 41.399	0.189
	31.0	1 41.189	
		3 41.369	0.180
	33.5	1 41.229	
		3 41.419	0.190
	36.0	1 41.210	
		3 41.441	0.231
	41.0	1 41.269	
		3 41.500	0.231
	43.3	1 41.288	
		3 41.510	0.222
	46.0	1 41.359	
		3 41.540	0.181
	48.7	1 41.368	
		3 41.511	0.143
	51.0	1 41.318	
		3 41.628	0.310
	53.5	1 41.290	
		3 41.475	0.185
	56.0	1 41.253	
		3 41.518	0.265
	58.5	1 41.402	
		3 41.629	0.227
	6 01.0	1 41.311	
		3 41.620	0.309
	3.0	1 41.258	
		3 41.491	+ 0.233

	h. m.	δ
M. Sid. T.	5 43.7	

	h. m.	r.
Hour angle	2 5.1 E.	+ 0.221
Interval	3 — 1	60.080
		60.301

	′ ″
Δδ 1840 - - - - -	15 26.209
Δp - - - +	1.271
Δm - - - +	0.060
Δρ - - - —	0.291
Δδ 1850, March 8,	15 27.249

Rev. = 15″.3771.

March 10. 20 Tauri — η Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
20 Tauri	5 40.0	1 40.230	
η Tauri		3 40.329	+ 0.099
	42.0	1 40.172	
		3 40.392	0.220
	45.0	1 40.232	
		3 40.420	0.188
	49.0	1 40.321	
		3 40.470	0.149
	51.0	1 40.290	
		3 40.430	0.140
	55.0	1 40.430	
		3 40.620	0.190
	56.0	1 40.418	
		3 40.582	0.164
	59.0	1 40.392	
		3 40.630	0.238
	6 02.0	1 40.423	
		3.40.693	0.270
	04.0	1 40.400	
		3 40.646	0.246
	07.0	1 40.418	
		3 40.623	0.205
	09.0	1 40.410	
		3 40.646	0.230
	12.0	1 40.510	
		3 40.675	0.165
	14.0	1 40.452	
		3 40.705	0.253
	17.0	1 40.470	
		3 40.717	0.247
	19.0	1 40.507	
		3 40.670	+ 0.163

	h. m.
M. Sid. T.	6 0.8

	h. m.	
Hour angle	2 22.2	+ 0.204
Interval	3 — 1	60.080
		60.284

	′ ″
Δδ 1840 - - - - -	15 26.209
Δp - - - +	1.265
Δm - - - +	.060
Δρ - - - —	.296
Δδ 1850, March 10,	15 27.238

Rev. = 15″.3812.

Δp Δm are the differences of precession and proper motion between the compared stars, from 1840 to the time of observation.
Δρ is the difference of refraction.

FOR THE VALUE OF A REVOLUTION OF THE MICROMETER SCREW.

March 11. 20 Tauri—η Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
20 Tauri	5 27.0	1 39.650	+ 0.207
		3 39.851	
	30.0	1 39.603	0.224
		3 39.827	
	32.0	1 39.550	0.191
		3 39.741	
	34.5	1 39.570	0.137
		3 39.707	
	37.0	1 39.600	0.181
		3 39.781	
	39.0	1 39.561	0.160
		3 39.721	
	42.0	1 39.542	0.249
		3 39.791	
	44.0	1 39.500	0.211
		3 39.711	
	46.0	1 39.559	0.190
		3 39.749	
	5 49.0	1 39.595	+ 0.180
		3 39.775	

	h. m.	
Mean Sid. T.	5 38.0	
	h. m.	
Hour angle	2 00 E.	+ 0.193
Interval	3 — 1	60.080
		60.273
		′ ″
Δδ 1840 - - - - -		15 26.209
Δp - - - +		1.263
Δm - - - +		.060
Δρ - - - —		.286
Δδ 1850, March 11,		15 27.246

Rev. = 15″.3841.

February 11. Bessel (4) — (10)

	Sid. T.	Mic.	Δ mic.
	h. m.		
(4)	8 01.0	2 37.616	
(10)		2 55.762	18.146
	4.0	2 37.557	
		2 55.742	18.185
	9.0	2 37.381	
		2 55.688	18.307
	10.0	2 37.461	
		2 55.727	18.266
	12.0	2 37.379	
		2 55.690	18.311
	14.0	2 37.378	
		2 55.678	18.290
	8 16.0	2 37.502	
		2 55.602	18.100

February 11. Bessel (4) — (10)

	Sid. T.	Mic.	Δ mic.
	h. m.		
(4)	8 18.0	2 37.240	
(10)		2 55.490	18.250
	20.0	2 37.328	
		2 55.482	18.154
	8 26.0	2 37.191	
		2 55.410	18.219

	h. m.	
Mean Sid. T.	8 13	
	h. m.	r.
Hour angle	4 36 W.	18.223
Δδ 1840 - - - - -		4 40.88
Δp - - - +		.642
Δρ - - - —		.141
Δδ 1850, February 11,		4 41.381

Rev. = 15″.4409.

February 12. Bessel (4) — (10)

	Sid. T.	Mic.	Δ mic.
	h. m.		
(4)	4 03.0	2 29.461	
(10)		2 47.715	18.254
	4 8.0	2 29.210	
		2 47.418	18.208
	4 11.0	2 29.140	
		2 47.460	18.320
	5 2.0	2 27.926	
		2 45.240	18.314
	5.0	2 28.050	
		2 46.268	18.218
	8.0	2 27.893	
		2 46.179	18.286
	11.0	2 28.009	
		2 46.208	18.199
	13.0	2 27.949	
		2 46.192	18.243
	15.0	2 27.882	
		2 46.248	18.366
	17.0	2 28.011	
		2 46.218	18.207
	18.0	2 27.938	
		2 46.220	18.282
	20.0	2 28.011	
		2 46.325	18.314
	23.0	2 27.840	
		2 46.222	18.382
	25.0	2 28.060	
		2 46.271	18.211
	27.0	2 28.135	
		2 46.189	18.054
	5 30.0	2 28.000	
		2 46.313	18.313

February 12. Bessel (4) — (10)

	Sid. T.	Mic.	Δ mic.
	h. m.		
(4)	5 31.0	2 28.011	
(10)		2 46.259	18.248
	36.0	2 27.990	
		2 46.209	18.119
	5 38.0	2 28.045	
		2 46.170	18.125

	h. m.	
Mean Sid. T.	5 08.5	
	h. m.	
Hour angle	1 31.4 E.	18.245
		′ ″
Δδ 1840 - - - - -		4 40.88
Δp - - - +		0.646
Δρ - - - —		.085
Δδ 1850, February 12,		4 41.441

Rev. = 15″.4256.

February 17. Bessel (4) — (10)

	Sid. T.	Mic.	Δ mic.
	h. m.		
(4)	3 46.0	2 26.888	
(10)		2 45.234	18.346
	49.0	2 26.764	
		2 45.039	18.275
	53.0	2 26.740	
		2 45.037	18.297
	58.0	2 26.771	
		2 45.079	18.308
	4 1.0	2 26.690	
		2 45.019	18.329
	3.0	2 26.668	
		2 44.999	18.331
	6.0	2 26.665	
		2 45.013	18.348
	8.0	2 26.688	
		2 44.932	18.244
	10.0	2 26.762	
		2 45.090	18.328
	4 12.0	2 26.770	
		2 45.085	18.315

	h. m.	
Mid. Sid. T.	4. 0.6	
	h. m.	r.
Hour angle	0 23.5 E.	18.312
		′ ″
Δδ 1840 - - - -		4 40.88
Δp - - - +		0.616
Δρ - - - —		0.085
Δδ 1850, February 17,		4 41.411

Value = 15″.3676.

FOR THE VALUE OF A REVOLUTION OF THE MICROMETER SCREW.

February 22. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	4 24.0	2 55.020	
20 Tauri		2 36.008	19.012
	29.0	2 55.030	
		2 35.960	19.070
	32.0	2 55.005	
		2 35.960	19.045
	34.0	2 54.951	
		2 35.980	18.971
	36.0	2 55.102	
		2 35.930	19.172
	39.0	2 54.900	
		2 35.858	19.042
	42.0	2 55.030	
		2 35.895	19.145
	45.0	2 55.050	
		2 35.890	19.160
	47.0	2 55.007	
		2 35.820	19.187
	49.0	2 54.980	
		2 35.932	19.048
	52.0	2 54.980	
		2 35.900	19.080
	4 53.0	2 55.031	
		2 35.850	19.181
	h. m.		
Mid. Sid. T.	4.40.0		
	h. m.		
Hour angle	1 04 W.	19.093	
		′ ″	
Δδ 1840 - - - - -		4 53.543	
Δp - - - —		.736	
Δm - - - +		.160	
Δρ - - - —		.089	
Δδ 1850, February 20,		4 52.878	

Rev. = 15″.3395.

February 23. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	4 07.0	2 54.780	
20 Tauri		2 35.705	19.075
	9.0	2 54.721	
		2 35.710	19.011
	12.0	2 54.760	
		2 35.762	18.998
	13.0	2 54.749	
		2 35.732	19.017
	4 15.0	2 54.730	
		2 35.671	19.059

February 23. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	4 18.0	2 54.708	
20 Tauri		2 35.639	19.069
	21.0	2 54.710	
		2 35.661	19.049
	22.0	2 54.688	
		2 35.615	19.073
	24.0	2 54.696	
		2 35.661	19.035
	26.0	2 54.708	
		2 35.643	19.065
	30.0	2 54.720	
		2 35.828	18.892
	32.0	2 54.795	
		2 35.798	18.997
	34.0	2 54.882	
		2 35.705	19.177
	37.0	2 54.829	
		2 35.720	19.109
	39.0	2 54.761	
		2 35.650	19.111
	42.0	2 54.788	
		2 35.765	19.023
	44.0	2 54.772	
		2 35.689	19.083
	46.0	2 53.871	
		2 35.690	19.181
	47.0	2 54.785	
		2 35.689	19.096
	50.0	2 54.772	
		2 35.731	19.041
	53.0	2 54.800	
		2 35.728	19.072
	55.0	2 54.818	
		2 35.750	19.068
	57.0	2 54.829	
		2 35.790	19.039
	5 0.0	2 54.950	
		2 35.781	19.169
	5 2.0	2 54.830	
		2 35.735	19.095
	h. m.		
Sid. Mid. T.	4 34.2		
	h. m.	r.	
Hour angle	1 8.0 W.	19.064	
		′ ″	
Δδ 1840 - - - - -		4 53.54	
Δp - - - —		.738	
Δm - - - +		.160	
Δρ - - - —		.089	
Δδ 1850, February 22,		4 52.873	

Rev. = 15″.3626.

February 25. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	4 28.0	2 50.728	
20 Tauri		2 31.632	19.096
	30.9	2 50.698	
		2 31.650	19.048
	32.0	2 50.660	
		2 31.657	19.003
	34.0	2 50.679	
		2 31.620	19.059
	38.0	2 50.741	
		2 31.740	19.001
	41.0	2 50.783	
		2 31.691	19.092
	42.5	2 50.820	
		2 31.715	19.105
	45.0	2 50.792	
		2 31.727	19.065
	49.0	2 50.838	
		2 31.751	19.087
	51.0	2 50.826	
		2 31.703	19.123
	53.0	2 50.851	
		2 31.731	19.120
	55.0	2 50.799	
		2 31.720	19.079
	58.0	2 50.862	
		2 31.863	18.999
	5 1.0	2 50.878	
		2 31.808	19.070
	2.0	2 50.875	
		2 31.879	18.996
	5.0	2 50.888	
		2 31.765	19.123
	7.0	2 50.870	
		2 31.849	19.021
	9.0	2 50.839	
		2 31.830	19.009
	11.0	2 50.862	
		2 31.810	19.052
	13.0	2 50.879	
		2 31.822	19.057
	h. m.		
Mid. Sid. T.	4 51.2		
	h. m.	r.	
Hour angle	1 15.2	19.060	
		′ ″	
Δδ 1840 - - - - -		4 53.54	
Δp - - - - —		.741	
Δm - - - - +		.160	
Δρ - - - - —		.089	
Δδ 1850, February 25,		4 52.870	

Rev. = 15″.3657.

FOR THE VALUE OF A REVOLUTION OF THE MICROMETER SCREW.

February 26. 16 Tauri—20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	4 15.0	2 47.861	
20 Tauri	0 38.0	2 28.883	19.078
	18.0	2 47.890	
		2 28.848	19.042
	20.0	2 47.759	
		2 28.719	19.040
	22.0	2 47.777	
		2 28.708	19.069
	24.0	2 47.722	
		2 28.752	18.970
	27.0	2 47.772	
		2 28.690	19.082
	29.0	2 47.750	
		2 28.680	19.070
	31.0	2 47.727	
		2 28.662	19.065
	34.0	2 47.720	
		2 28.690	19.030
	36.0	2 47.688	
		2 28.709	18.979
	38.0	2 47.731	
		2 28.748	18.983
	0 40.0	2 47.719	
		2 28.712	19.007

Mid. Sid. T.	h. m. 4 27.9	
Hour angle	h. m. 0 51.9	r. 19.034
		′ ″
Δδ 1840 - - - - -		4 53.54
Δp - - - -	—	.742
Δm - - - -	+	.160
Δρ - - - -	—	.089
Δδ 1850, February 26,		4 52.859

Rev. = 15″.3866.

March 1. 16 Tauri—20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	4 41.0	2 43.023	
20 Tauri	1 5.0	2 23.980	19.043

March 1. 16 Tauri—20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	1 44.0	2 43.139	
20 Tauri		2 23.935	19.204
	46.0	2 43.031	
		2 24.001	19.031
	48.0	2 43.021	
		2 24.061	18.960
	51.0	2 43.087	
		2 24.021	19.066
	53.0	2 43.003	
		2 24.070	18.933
	55.0	2 43.049	
		2 23.983	19.066
	1 57.0	2 43.070	
		2 24.050	19.020

Mid. Sid. T.	h. m. 4 49.4	
Hour angle	h. m. 1 13	r. 19.040
		′ ″
Δδ 1840 - - - - -		4 53.54
Δp - - - -	—	.743
Δm - - - -	+	.060
Δρ - - - -	—	.089
Δδ 1850, March 1,		4 52.868

Rev. = 15″.3817.

March 4. 16 Tauri—20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	5 4.0	2 61.360	
20 Tauri		2 42.479	18.881
	6.0	2 61.351	
		2 42.328	19.023
	8.0	2 61.438	
		2 42.341	19.087
	10.0	2 61.389	
		2 42.268	19.121
	5 16.0	2 61.549	
		2 42.436	19.113

March 4. 16 Tauri—20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	5 18.0	2 61.480	
20 Tauri		2 42.430	19.050
	21.2	2 61.698	
		2 42.622	19.076
	23.0	2 61.621	
		2 42.552	19.069
	25.0	2 61.621	
		2 42.540	19.081
	28.0	2 61.731	
		2 42.670	19.061
	30.0	2 61.503	
		2 42.532	18.971
	32.0	2 61.533	
		2 42.471	19.062
	36.0	2 61.610	
		2 42.506	19.104
	37.0	2 61.568	
		2 42.520	19.048
	40.0	2 61.562	
		2 42.643	18.919
	41.0	2 61.665	
		2 42.622	19.033
	44.0	2 61.701	
		2 42.750	18.951
	5 47.0	2 61.745	
		2 42.573	19.172

Mid. Sid. T.	h. m. 5 25.9	
Hour angle	h. m. 1 49	r. 19.046
		′ ″
Δδ 1840 - - - - -		4 53.54
Δp - - - -	—	.744
Δm - - - -	+	.160
Δρ - - - -	—	.092
Δδ 1850, March 4,		4 52.864

Rev. = 15″.3767.

RESULTS.

	No. comp.	A.	Therm. °	Rev. ″	
February 5,	17	7	27 F.	15.3770	From 20 Tauri — η Tauri.
March 8,	16	7	51	.3771	
10,	16	10	52	.3812	
11,	10	9	45	.3841	
February 11,	10	7	42	.4409	From Bessel (4)—(10)
12,	19	7	47	.4256	
17,	10	10	40	15.3676	

	No. comp.	A.	Therm. °	Rev. ″	
February 22,	12	9	47	15.3395	From 16 Tauri—20 Tauri.
23,	25	9	43	.3626	
25,	20	10	56	.3657	
26,	12	10	60	.3866	
March 1,	8	7	56	.3817	
4,	18	8	40	15.3767	

The value adopted for 1850 is 15″.3696. It is the mean of all the observations when A is greater than 8.

OCCULTATIONS OF STARS BY THE MOON.

DATE.	OBJECTS.	Mag.		Chron. time.	Corr. Chron.	Sid. time.	Mean time.	REMARKS.
1850.				Siderial T.				
				h. m. s.	s.	h. m. s.	h. m. s.	
Feb. 19	48, Tauri . . .	6.	Im.	3 51 24.62	+ 33.86	3 51 58.48	5 53 50.93	
	48, Tauri . . .	6.	Em.	4 47 2.10	33.85	4 47 35.95	6 49 19.49	
	γ Tauri . . .	3.5	Im.	6 27 31.10	33.74	6 28 4.84	8 29 31.92	
	70, Tauri . . .	7.	Im.	9 22 24.62	33.62	9 22 58.24	11 23 56.67	
April 15	α Tauri . . .	1.	Im.	3 1 23.59	+ 1.53	3 1 25.13	1 27 11.22	Star indistinct and tremulous; the instant of disparition uncertain.
May 26	16, Sagittarii . .	6.	Im.	15 38 13.00	— 68.59	15 37 4.41	11 19 24.46	Instant of disparition uncertain half a second.
June 12	2759, B. A. C . .	7.	Im.	13 39 42.53	— 46.25	13 38 56.28	8 14 53.18	
				Mean time.				
Oct. 14	θ Capricorni . .	5.5	Im.	6 22 34.00	+ 0.36	. . . .	6 22 34.36	
19	26, Ceti	6.5	Im.	6 30 32.40	35.49	. . . .	6 31 7.89	
Nov. 20	7202, B. A. C. .	6.	Im.	6 41 11.50	14.06	. . . .	6 41 25.56	This star is double; the occultation is of the last star.
Dec. 8	i Capricorni . .	5.	Im.	7 41 2.10	+ 2.09	. . . .	7 41 4.19	

These observations by Mr. Ferguson.

MEAN PLACES OF STARS FOR 1850.0

AS OBSERVED AT

THE NATIONAL OBSERVATORY,

IN THE YEARS

1849 AND 1850.

Polaris.

		h. m. s.
March	7 S. P. -	1 4 62.01
	10 - - -	59.74
	19 - - -	(54.45)
	19 S. P. -	(53.37)
	22 - - -	62.51
	23 - - -	59.90
April	2 - - -	56.66
	5 - - -	63.31
	14 S. P. -	60.65
	18 S. P. -	61.53
	19 S. P. -	64.23
	30 S. P. -	58.98
May	2 S. P. -	61.87
	14 S. P. -	59.98
	17 S. P. -	60.65
	18 S. P. -	62.65
	23 S. P. -	61.06
July	10 S. P. -	61.67
	17 S. P. -	61.29
	18 S. P. -	60.70
August	6 S. P. -	57.38
September	7 S. P. -	56.43
	10 S. P. -	60.72
	28 S. P. -	61.20

α Arietis.

January	2 - - -	1 58 43.61

γ Ceti.

March	2 - - -	2 35 31.70
	5 - - -	32.04
	12 - - -	32.02

Arietis, (845.)

March	4 - - -	2 36 50.43

α Ceti.

March	4 - - -	2 54 26.65
	10 - - -	26.59
	12 - - -	26.48

α Persei.

January	10 - - -	3 13 38.49
	11 - - -	38.69
	12 - - -	38.22
	18 - - -	38.25

Dec. + 33° 37′.

January	2 - - -	3 30 38.68
	5 - - -	38.44

Persei, (1132.)

January	2 - - -	3 32 52.92
	5 - - -	52.90

η Tauri.

January	4 - - -	3 38 34.45
	10 - - -	34.56
	12 - - -	34.50
	18 - - -	34.51
	27 - - -	34.55
February	3 - - -	34.50

Dec. + 35° 33′.

January	2 - - -	3 47 0.23

Dec. + 36° 03′.

January	10 - - -	3 47 48.22

γ^1 Eridani.

January	11 - - -	3 51 1.94
	12 - - -	2.01
	17 - - -	1.85
	18 - - -	2.00
	23 - - -	1.99
	27 - - -	2.08
February	3 - - -	1.86

λ Tauri.

January	4 - - -	3 52 22.59

α Tauri.

January	2 - - -	4 27 18.95
	4 - - -	19.13
	10 - - -	18.94
	11 - - -	18.96
	17 - - -	19.12
	18 - - -	19.01
	23 - - -	19.00
	24 - - -	19.06
February	3 - - -	19.07
	7 - - -	18.95

Dec. + 43° 56′.

January	5 - - -	4 44 5.86

Dec. + 43° 50′.

February	7 - - -	4 44 23.26

Dec. + 43° 51′.

January	5 - - -	4 44 39.91
February	7 - - -	39.85

Dec. + 43° 50′.

January	4 - - -	4 45 7.01
	5 - - -	7.00

Dec. + 44° 24′.

January	5 - - -	4 51 34.85

ι Tauri.

February	3 - - -	4 54 7.73

Dec. + 45° 7′.

February	7 - - -	4 54 24.19

Dec. + 44° 30′.

January	2 - - -	4 55 44.59
	4 - - -	44.57

Tauri, (1562.)

February	19 - - -	4 56 36.39

Dec. + 26° 30′.

January	27 - - -	4 57 45.43

Dec. + 26° 7′.

February	19 - - -	4 58 39.90

Dec. + 26° 30′.

January	27 - - -	4 58 40.05

Dec. + 26° 30′.

January	27 - - -	5 1 45.27

Dec. + 26° 30′.

January	27 - - -	5 2 4.49
February	6 - - -	4.86

Dec. + 26° 16′.

February	19 - - -	5 3 4.62

α Aurigæ.

January	11 - - -	5 5 36.91
	18 - - -	37.09
	23 - - -	36.87
	24 - - -	36.92
	26 - - -	36.98
May	19 - - -	37.10
June	5 - - -	(37.56)
July	10 - - -	36.90
	11 - - -	36.90
	12 - - -	37.00

Dec. − 8° 20′.

February	12 - - -	5 6 20.65

β Orionis.

January	2 - - -	5 7 19.86
	4 - - -	19.87
	5 - - -	19.68
	12 - - -	19.76
February	3 - - -	19.90
	7 - - -	19.76
	9 - - -	19.77
	12 - - -	19.78
July	16 - - -	19.84

Dec. + 26° 30′.

January	27 - - -	5 10 31.52

Dec. + 26° 30′.

February	6 - - -	5 13 53.34

Dec. + 26° 30′.

January	27 - - -	5 14 53.33

Dec. + 26° 30′.

February	6 - - -	5 15 16.24

Dec. + 26° 30′.

February	6 - - -	5 16 48.18

β Tauri.

January	2 - - -	5 16 48.81
	4 - - -	48.74
	10 - - -	48.78
	12 - - -	48.82
	18 - - -	48.71
	23 - - -	48.78
	24 - - -	48.75
	26 - - -	48.76
February	3 - - -	(48.49)
	7 - - -	48.78
July	10 - - -	48.84
	11 - - -	48.79
	12 - - -	48.78
	16 - - -	48.77

Dec. + 26° 30′.

January	27 - - -	5 17 16.30

Dec. + 26° 30′.

January	27 - - -	5 18 47.73

Dec. + 26° 30′.

January	27 - - -	5 20 22.61

Dec. + 26° 30′.

January	27 - - -	5 21 43.08

Dec. + 26° 30′.

January	27 - - -	5 22 35.90

δ Orionis.

January	4 - - -	5 24 20.64
	10 - - -	20.71
	12 - - -	20.89
	18 - - -	20.80
	23 - - -	20.73
	26 - - -	20.72
February	3 - - -	20.71
	6 - - -	20.71
	7 - - -	20.72
	9 - - -	20.56
	19 - - -	20.74
	23 - - -	20.68
July	10 - - -	20.69
	11 - - -	20.69
	12 - - -	20.66
	16 - - -	20.61

α Leporis.

January	11 - - -	5 26 7.00
	12 - - -	6.95

ε Orionis.

		h. m. s.
January	4	5 28 36.23
	10	36.24
	11	36.12
	12	36.34
	18	36.15
	26	36.17
	27	36.16
February	7	36.27
	12	36.24
	19	36.17
	23	36.19
July	11	36.17
	12	36.16
	16	36.31

ζ Tauri.

February	3	5 28 41.03

α Columbæ.

January	11	5 34 13.07
	23	13.14
February	6	13.12

α Orionis.

January	11	5 47 3.19
	18	3.00
	26	3.06
February	3	3.10
	10	3.04
	12	3.08
	19	3.03
	23	3.11
March	7	3.26
July	10	3.12

μ Geminorum.

March	8	6 13 53.06

α Canis Majoris.

January	26	6 38 32.24
February	3	32.28
	7	32.37
	9	32.26
	10	32.48
	13	32.22
March	7	32.42
	10	32.30
April	2	32.20

Dec. + 52° 10′.

February	12	6 40 6.59

ε Canis Majoris.

January	26	6 52 43.85
February	6	43.80
	13	44.03
March	7	43.83
	8	43.89
	12	43.87
	16	43.79
April	2	43.91

δ Geminorum.

		h. m. s.
January	26	7 11 9.55
	27	9.49
February	6	9.65
	7	9.61
	10	9.51
	13	9.49
March	7	9.61
	16	9.70
April	2	9.66

α^2 Geminorum.

January	26	7 25 1.47
February	6	1.26
	7	1.28
	10	1.28
	13	1.16
March	10	1.25
	12	1.28
	16	1.30
	19	1.22
	22	1.26
April	2	1.34
August	6	1.41
	7	1.26
	16	1.20

α Canis Minoris.

January	26	7 31 26.85
February	7	26.79
	10	26.88
	13	26.86
March	10	26.93
	12	26.82
	19	26.81
	23	26.84
April	2	26.93
August	7	26.85
	16	26.78

β Geminorum.

January	26	7 36 7.71
February	6	7.84
	7	7.76
	10	7.67
	13	7.76
March	10	7.77
	12	7.78
	19	7.76
	23	7.89
August	7	7.71
	16	7.82

15 Argus.

January	26	8 1 9.30
March	8	9.39
	10	9.31
	12	9.28
	22	9.41
	23	9.21

θ Cancri.

February	6	8 23 2.35

δ Cancri.

February	6	8 36 9.19

ε Hydræ.

		h. m. s.
January	26	8 38 49.79
February	7	49.72
April	5	49.65
	6	49.68
	12	49.64

ι Ursæ Majoris.

January	26	8 48 54.73
April	5	54.74
	6	54.68
	12	54.88

α Hydræ.

January	26	9 20 12.80
February	9	12.95
April	6	12.83
	11	12.92
	12	13.05
	16	12.93

ξ Leonis.

February	6	9 23 51.29
	7	51.24

ο Leonis.

February	7	9 33 8.32

ε Leonis.

February	7	9 37 19.76
April	6	19.57
	10	19.64
	11	19.68
	12	19.58
	16	19.69
	20	19.66

α Leonis.

February	7	10 0 22.41
March	30	22.69
April	10	22.60
	11	22.69
	12	22.64
	14	22.47
	16	22.62
	19	22.56
	20	22.74
	30	22.69

ρ Leonis.

February	7	10 24 54.25

Dec. — 3° 51′.

April	30	10 26 21.10

Dec. — 3° 51′.

April	30	10 28 9.97

Dec. — 3° 51′.

		h. m. s.
April	30	10 28 54.36
May	2	54.88

Dec. — 3° 50′.

May	2	10 29 43.21

Dec. — 3° 37′.

May	2	10 35 27.23

Dec. — 0° 46′.

April	30	10 45 1.81
May	2	2.02

Dec. — 0° 46′.

April	30	10 45 59.95

Dec. — 0° 46′.

April	30	10 46 54.35
May	2	54.66

Dec. — 0° 46′.

April	30	10 48 26.41
May	2	26.61

d Leonis.

March	7	10 52 48.95
	8	48.74

α Ursæ Majoris.

March	30	10 54 25.90
April	10	25.71
	12	25.78
	18	25.47

χ Leonis.

March	7	10 57 16.51
	8	16.55
May	2	16.48

Dec. —41° 24′.

March	30	11 4 15.30

δ Leonis.

March	7	11 6 7.36
	12	7.45
	16	7.47
	29	7.42
April	10	7.47
	12	7.41
	18	7.25
	19	7.35
	30	7.45
May	2	7.41

δ Hydræ et Crateris.

		h. m. s.
March	7	11 11 50.58
	16	50.55
	29	50.63
	30	50.59
April	10	50.74
	12	50.69
	14	50.61
	18	50.73
	19	50.75
	30	50.59

σ Leonis.

April	5	11 13 24.15
May	2	23.94

τ Leonis.

April	5	11 20 13.48
May	9	13.32

Crateris, (3925.)

May	9	11 25 10.09

υ Leonis.

May	9	11 29 15.96

ζ Crateris.

May	9	11 37 9.68

Dec. + 15° 5′.

April	19	11 40 55.31

β Leonis.

March	29	11 41 24.17
April	14	24.32
	18	24.21
	30	24.24
May	9	24.15
	14	24.25

β Virginis.

March	8	11 42 52.78

γ Ursæ Majoris.

September	11	11 45 54.91
October	24	55.05

Virginis, (4063.)

May	11	11 55 55.13

Virginis, (4083.)

May	11	12 0 19.74

Virginis, (4114.)

May	11	12 5 47.55

η Virginis.

		h. m. s.
April	5	12 12 14.02
	6	14.12
May	2	13.83

Virginis, (4168.)

May	11	12 14 54.37
	15	54.36

Virginis, (4200.)

May	15	12 20 9.82

β Corvi.

March	19	12 26 30.92
April	18	30.97
	19	30.97
	30	30.90
May	2	30.95
	9	(31.33)
	11	30.88
	14	30.92
	15	30.84
July	17	30.97

γ Virginis.

April	6	12 34 3.84

Virginis, (4286.)

May	9	12 38 2.28

δ Virginis.

May	31	12 48 3.03

12 Canum Venaticorum.

May	9	12 49 0.27
	15	0.12
	17	0.10
July	10	0.19
October	24	0.23

α Virginis.

March	7	13 17 17.81
	19	17.70
April	6	17.96
	14	17.89
	30	17.82
May	2	17.72
	14	17.75
	15	17.77
	17	17.77
	18	17.79
	23	17.86
	31	17.73
June	4	17.65
	5	17.66
July	17	17.71
	18	17.61
September	10	17.77
	11	17.70
October	24	17.57

λ Virginis.

		h. m. s.
May	31	13 25 4.48

Dec. + 22° 43′.

April	20	13 36 22.90

Dec. + 22° 43′.

April	20	13 36 52.72

Dec. + 22° 43′.

April	20	13 37 13.26

Dec. + 22° 43′.

April	20	13 38 17.07

Dec. + 22° 43′.

April	20	13 41 32.20
May	2	32.35

η Ursæ Majoris.

May	14	13 41 37.40
	18	37.34
	23	37.46
July	10	37.25
	18	37.52

Dec. + 22° 43′.

April	20	13 42 0.81

ν Bootis.

May	9	13 32 42.53

Dec. + 22° 40′.

May	2	14 43 16.04

η Bootis.

April	19	13 47 32.41
	30	32.41
May	3	32.47
	9	32.49
	14	32.44
	15	32.55
	18	32.53
	23	32.50
June	4	32.57
	5	32.55
July	17	32.50
	18	32.59
September	7	32.57

Dec. + 24° 4′.

April	19	13 50 20.82

Dec. + 23° 47′.

April	20	13 51 38.28

Dec. + 23° 47′.

April	20	13 52 42.43

Dec. + 23° 47′.

		h. m. s.
April	20	13 54 21.24

Dec + 23° 56′.

May	2	13 54 31.35

Dec. + 23° 56′.

May	2	13 58 53.40

α Bootis.

March	29	14 8 49.27
April	11	49.16
	30	49.16
May	2	49.12
	3	49.15
	9	49.19
	14	49.11
	15	49.20
	18	49.10
	19	49.11
	23	49.25
June	4	49.18
	5	49.15
	11	49.09
	18	49.33
July	17	49.19
	18	49.17
August	6	49.07
September	7	49.18
October	24	49.24

π Bootis.

May	9	14 33 40.72

ε Bootis.

April	2	14 38 25.98
	10	26.19
	20	26.03
	30	26.19
May	3	26.12
	9	26.14
	14	26.18
	18	26.22
	19	26.10
	23	26.11
June	4	26.19
	5	26.13
	11	25.94
	20	26.06
	22	26.12
July	17	26.13

α^2 Libræ.

April	2	14 42 35.37
	10	35.21
	20	35.17
	30	35.24
May	3	35.30
	9	35.20
	14	35.25
	18	35.27
	19	35.36
	23	35.25
June	4	35.25
	5	35.32
	11	35.50
	20	35.17
	22	35.26

β Ursæ Minoris.

		h. m. s.
April	10	14 51 11.97
	30	12.04
May	14	11.79
June	16	12.22
	22	12.30

Libræ, (4941.)

May	15	14 53 32.44

β Libræ.

April	10	15 8 56.29
	20	56.51
	30	56.44
May	9	56.33
	15	56.31
	18	56.34
	19	56.33
	23	56.32
June	4	56.34
	11	56.43
	16	56.36
	18	56.45
	20	56.36
	22	56.47
July	2	56.42

Libræ, (5125.)

April	10	15 25 59.02

α Coronæ Borealis.

April	20	15 28 20.16
May	9	20.16
	14	20.19
	15	20.23
	17	20.14
	18	20.13
	19	20.00
	23	20.23
June	11	20.15
	16	20.30
	18	20.14
	20	20.31
	22	20.13
July	2	20.22
	5	20.27

α Serpentis.

April	10	15 36 52.89
	20	52.99
May	11	52.81
	14	52.89
	15	52.86
	17	52.88
	18	52.90
	19	52.94
	23	52.92
	31	52.91
June	11	53.05
	16	52.89
	18	53.03
	20	52.93
	22	52.87
July	2	52.91
	5	52.95

ζ Ursæ Minoris.

July	2	15 49 31.63
	5	31.51

Libræ, (5290.)

		h. m. s.
April	10	15 49 47.61

β^1 Scorpii.

April	10	15 56 43.30
May	15	43.33
	23	43.26
June	4	43.25
	11	43.13
	26	43.36
July	5	43.27

ν Scorpii.

June	4	16 3 16.94
July	2	17.01

δ Ophiuchi.

May	11	16 6 29.30
	15	29.20
	23	29.27
	31	29.22
June	11	29.25
	16	29.17
	26	29.37
July	5	29.30

ψ Ophiuchi.

April	10	16 15 19.79
July	2	19.94

α Scorpii.

May	11	16 20 13.04
	15	13.01
June	16	13.00
	26	13.01
July	2	12.96
	5	12.93
Aug.	27	13.01

φ Ophiuchi.

April	10	16 22 33.51
June	4	33.51

20 Ophiuchi.

June	4	16 41 32.36

η Ophiuchi.

July	2	17 1 46.57

α Herculis.

May	23	17 7 48.38
June	16	48.51
July	5	48.38
	10	48.42
	13	48.47
August	27	48.56

θ Ophiuchi.

July	2	17 12 47.98
August	27	47.97

α Ophiuchi.

		h. m. s.
June	16	17 27 58.30
	18	58.25
July	2	58.20
	5	58.36
	10	58.30
	13	58.36
August	27	58.30

58 Ophiuchi.

August	27	17 34 26.41

γ Draconis.

July	10	17 53 7.29
	13	7.31
August	27	7.56

μ^1 Sagittarii.

June	18	18 4 47.29
	20	47.58
	26	47.59
July	2	47.58
	5	47.42
	10	47.53
	13	47.50
August	16	47.45
	27	47.54

λ Sagittarii.

August	27	18 18 42.64

δ Ursæ Minoris.

January	18 S. P.	18 20 43.65
	26 S. P.	43.71
	27 S. P.	43.73
February	3 S. P.	43.54
	7 S. P.	43.24
	9 S. P.	43.98
	10 S. P.	43.64
	12 S. P.	43.65
March	7 S. P.	43.27
June	18	43.75
	20	44.25
	26	43.18
July	2	44.05
	5	43.57
	10	43.19
	13	43.67
August	16	43.55

α Lyræ.

August	27	18 31 51.25
September	7	51.64
	11	51.64
December	7	51.37

β Libræ.

June	26	18 44 32.26
July	5	32.58
August	16	32.50
	27	32.44
September	7	32.55
	13	32.43
	25	32.45

ε Sagittarii.

		h. m s.
September	25	18 55 41.39

ζ Aquilæ.

August	16	18 58 30.72
	27	30.89
Seytember	7	30.85
	11	30.91
	13	30.87
December	7	30.75

π Sagittarii.

September	25	19 0 50.49

δ Aquilæ.

August	16	19 17 56.10
	24	56.08
September	7	56.07
	10	56.03
	11	55.96
	13	56.09
	21	56.03
December	7	56.00

ϵ^2 Sagittarii.

September	25	19 33 56.21

γ Aquilæ.

August	16	19 39 7.60
	24	7.58
September	7	7.65
	10	7.57
	11	7.72
	13	7.59
	15	7.41
	18	7.72
	19	7.68
	21	7.47
	25	7.63
	27	7.66
December	7	7.71

α Aquilæ.

August	16	19 43 27.90
	24	27.77
September	7	27.72
	10	27.77
	11	27.72
	13	27.78
	14	27.87
	15	27.70
	18	27.77
	19	27.71
	21	27.81
	25	27.75
	27	27.69
December	7	(28.01)

β Aquilæ.

August	16	19 47 56.60
	24	56.68
September	7	56.64
	10	56.53
	11	56.61
	13	56.66

β Aquilæ—Continued.

	h. m. s.
September 14	19 47 56.64
15	56.63
18	56.63
19	56.51
21	56.65
27	56.65

g Sagittarii.

September 25	19 49 26.26

α² Capricorni.

August 24	20 9 43.60
September 10	43.58
11	43.61
14	43.58
15	43.62
18	43.63
19	43.50
21	43.64
25	43.55
28	43.61

β Capricorni.

September 27	20 12 34.62

v Capricorni.

September 27	20 31 30.21

α Cygni.

September 10	20 36 19.12
11	18.99
13	19.06
14	19.16
15	19.04
21	19.06
27	19.14

61¹ Cygni.

September 10	21 0 10.55
11	10.63
13	10.83

61¹ Cygni—Continued.

	h. m. s.
September 14	21 0 10.52
15	10.63
18	10.59
19	10.41
21	10.69
25	10.67
28	10.59
October 8	10.65

ζ Cygni.

September 10	21 6 33.36
11	33.20
13	32.90
14	33.11
15	33.12
18	33.21
19	32.98
21	33.35
25	33.22
28	33.12
October 8	33.20

α Cephei.

September 11	21 14 59.81
14	59.46
18	59.66
25	59.77
28	59.55
October 8	59.68

β Aquarii.

September 10	21 23 39.54
11	39.49
13	39.44
14	39.30
15	39.38
18	39.51
25	39.50
28	39.50
October 8	39.46
24	39.52

β Cephei.

September 18	21 26 42.23
October 8	42.32

γ Capricornii.

	h. m. s.
September 27	21 31 46.38
28	46.29

ε Pegasi.

September 10	21 36 48.95
11	49.08
13	49.04
18	49.02
21	48.90
25	49.04
28	49.11
October 8	49.04
24	49.17

δ Capricorni.

September 27	21 38 45.31
28	45.24

α Aquarii.

September 7	21 58 4.61
25	4.67
October 8	4.54

ι Aquarii.

September 28	21 58 19.71
October 26	19.73

Dec. —22° 14′.

September 15	21 59 29.54

Dec. —21° 58.

September 11	22 2 42.16
13	42.29

θ Aquarii.

September 28	22 8 54.81

σ Aquarii.

	h. m. s.
October 26	22 22 42.27

ζ Pegasi.

September 11	22 33 58.76
13	58.95
15	59.16
21	58.87
25	58.75
28	58.84
October 8	58.85
9	58.87
24	58.78
26	58.88
November 3	58.91

λ Aquarii.

October 26	22 44 47.16

α Piscis Australis.

October 26	22 49 21.01
November 3	20.88

α Ursæ Majoris.

October 26	22 54 25.49

α Pegasi.

November 3	22 57 17.51

Dec. + 14° 8′.

October 24	22 58 4.84

γ Cephei.

October 26	23 33 13.93
November 3	13.98

α Andromedæ.

		h. m. s.
April	28	0 0 38.44
October	1	38.46
	7	38.38
	9	38.80
November	30	38.54

γ Pegasi.

February	25	0 5 31.02
April	28	30.82
October	1	30.98
	3	30.72
	7	30.75
	31	30.92
November	9	30.89
	13	29.81
	14	30.89
	21	31.07
	30	30.98
December	18	30.93

α Cassiopeiæ.

November	14	0 32 1.78
December	13	1.70
	18	1.59

β Ceti.

November	30	0 36 4.39
December	13	3.19

Ceti, (242.)

December	13	0 45 20.49

Polaris.

February	25	1 4 56.77
April	4 S. P.	4 59.53
	15 S. P.	5 1.35
	29 S. P.	5 0.90
	30 S. P.	4 54.93
May	1 S. P.	4 58.74
	6 S. P.	4 59.23
	9 S. P.	5 4.27
	11 S. P.	5 3.15
	12	5 4.63
	13 S. P.	5 1.28
	21 S. P.	4 58.52
	22 S. P.	4 59.63
	26	5 1.16
	27 S. P.	5 0.44
	28 S. P.	5 0.13
June	3 S. P.	5 1.99
	4 S. P.	5 0.13
	5 S. P.	5 1.76
July	5 S. P.	4 57.17
	19 S. P.	5 4.88
September	3 S. P.	5 5.72
	23 S. P.	5 1.28
October	1 S. P.	4 59.68
	3 S. P.	5 1.36
	7 S. P.	5 1.15
	8 S. P.	5 4.13
	27 S. P.	5 2.87
November	1 S. P.	4 57.38
December	20	5 7.96
	26	5 3.78

θ¹ Ceti.

November	14	1 16 31.66
	30	31.59

θ¹ Ceti—Continued.

		h. m. s.
December	18	1 16 31.52
	20	31.41
	26	31.36

ν Piscium.

December	13	1 33 37.73

ο Piscium.

December	13	1 37 28.45

α Arietis.

January	12	1 58 43.68
December	20	43.66
	26	43.56

γ Ceti.

January	12	2 35 31.91
	14	32.00
December	20	31.97
	26	31.90

α Ceti.

January	12	2 54 26.61
	14	26.37

α Persei.

January	12	3 13 38.19
	14	38.03

η Tauri.

January	12	3 38 34.50
	14	34.58

γ¹ Eridani.

January	12	3 51 2.06
	14	2.18

α Tauri.

January	14	4 27 19.00
	30	19.14
February	5	18.87
	11	19.02
	16	19.11
April	29	19.02

Bessel's Zones, 396, δ + 26° 16′.

January	14	5 3 4.48

α Aurigæ.

April	29	5 5 36.96
May	1	36.85

β Orionis.

February	3	5 7 19.80
	11	19.93
	19	19.83

β Orionis—Continued.

		h. m. s.
April	29	5 7 19.65
May	1	19.62
June	5	20.12
July	2	19.89
	4	19.84
August	6	19.83

β Tauri.

January	14	5 16 48.71
	30	48.78
February	5	48.89
	16	48.73
	19	48.74
	23	48.73
April	29	48.77
July	2	48.85
	4	48.86
	10	48.90
August	6	48.71

δ Orionis

January	14	5 24 20.64
	30	20.66
February	5	20.65
	11	20.68
	19	20.70
	23	20.71
	25	20.65
July	2	20.78
	4	20.65

ε Orionis.

January	30	5 28 36.17
February	5	36.17
	19	36.21
	23	36.17
	25	36.22
July	4	36.08

α Columbæ.

February	20	5 34 13.14

α Orionis.

January	11	5 47 3.08
February	11	3.15
	16	3.11
	19	3.04
	20	3.14
	23	3.18
	25	3.07
	26	3.06
July	2	3.15
	4	3.17
	10	3.09

μ Geminorum.

February	11	6 13 51.54
	22	53.02

δ Ursæ Minoris, S. P.

January	12	6 20 44.01
February	25	42.70
	26	44.11
March	5	42.59

α Canis Majoris.

		h. m. s.
January	30	6 38 32.25
February	5	32.21
	11	32.34
	16	32.33
	22	32.41
	25	32.23
	26	32.21
March	6	32.33
	11	32.24
	12	32.21
June	3	32.33
	5	32.55
	7	32.24
	12	32.28
July	2	32.30
	4	31.96
	10	31.22
August	6	32.07

ε Canis Majoris.

February	11	6 52 43.79
March	12	43.89
June	3	43.89

δ Geminorum.

January	12	7 11 9.45
February	5	9.67
	11	9.64
	19	9.64
	23	9.71
March	6	9.62
	7	9.79
	11	9.57
April	27	9.66

α² Geminorum.

February	5	7 25 1.41
	12	0.95
	19	1.34
	23	1.41
	25	1.31
	26	1.32
March	6	1.25
	7	1.24
	9	1.20
	11	1.23
	12	1.37
April	27	1.32
August	6	1.24

α Canis Minoris.

February	7	7 31 26.87
	12	26.90
	19	26.84
	25	26.85
	26	26.86
March	6	26.89
	9	26.80
	11	26.76
April	27	26.90
June	3	26.31
	7	26.95
	12	26.86
August	6	26.88
	21	26.84

κ Geminorum.

		h. m. s.
February	23	7 35 23.09

β Geminorum.

January	30	7 36 7.89
February	5	7.76
	19	7.77
	25	7.55
March	6	7.73
	7	7.83
	9	7.80
	11	7.66
April	27	7.85
June	3	7.60
	5	7.68
	12	7.73
August	6	7.72
	21	7.69

15 Argus.

February	11	8 1 9.36
	23	9.27
	25	9.53
March	7	9.51
	19	9.60
April	27	9.29

θ Cancri.

March	23	8 23 1.94

δ Cancri.

March	23	8 36 9.07

ε Hydræ.

February	11	8 38 49.73
	12	49.65
	19	49.79
	25	49.74
	26	49.77
March	11	49.71
	12	49.77
	19	49.71
April	2	49.69
	15	49.56
	27	49.64

ι Ursæ Majoris.

February	11	8 48 54.95
	19	55.01
March	19	54.79
April	2	54.88
	27	54.83

α Cancri.

February	23	8 50 16.82
March	23	16.61

κ Cancri.

[illegible]	23	8 59 36.93

α Hydræ.

		h. m. s.
February	11	9 20 12.94
	23	13.05
	25	13.00
March	7	12.87
	11	12.89
	19	13.03
	23	12.92
April	2	12.80
	13	12.79
	15	12.88

ο Leonis.

February	25	9 33 8.26

ε Leonis.

February	12	9 37 19.63
	19	19.66
	23	19.58
March	7	19.70
	11	19.70
	19	19.59
	23	19.56
April	2	19.66
	4	19.63
	6	19.67
	15	19.60
	17	19.73

π Leonis.

April	15	9 52 16.63

α Leonis.

February	12	10 0 22.71
	19	22.66
	25	22.59
March	7	22.77
	11	22.68
	19	22.65
	23	22.57
April	4	22.66
	6	22.59
	13	22.68
	15	22.75
	17	22.60

ρ Leonis.

February	25	10 24 46.55

Leonis Minoris, (3661.)

May	1	10 33 46.20

Leonis Minoris, (3704.)

May	1	10 40 40.14

Leonis Minoris, (3728.)

May	1	10 44 54.52

β Ursæ Majoris.

April	17	10 52 45.50

α Ursæ Majoris.

		h. m. s.
February	19	10 54 26.01
March	23	25.51
April	2	25.81
	4	25.60
	6	25.60
	13	25.66
	17	26.20
	18	25.80
	29	25.75
	30	25.56
May	1	25.60
	2	25.69

χ Leonis.

February	25	10 57 16.48

δ Leonis

February	19	11 6 7.58
	25	7.23
March	7	7.41
	11	7.89
	19	7.26
	23	7.64
April	2	7.44
	13	7.49
	16	7.44
	18	7.40
	29	7.44
	30	7.37
May	2	7.54
	9	7.38

δ Hydræ et Crateris.

February	19	11 11 50.66
	25	50.73
March	7	50.58
	11	51.20
April	2	50.59
	4	50.63
	6	50.78
	13	50.62
	16	50.62
	17	50.66
	18	50.62
	29	50.55
	30	50.58
May	2	50.60
	6	50.58
	9	50.60

τ Leonis.

April	15	11 20 13.23

Hydræ, (3926.)

May	16	11 25 29.42

Hydræ, (3963.)

May	16	11 32 46.24

Leonis, (3964.)

May	9	11 32 58.71

ν Virginis.

		h. m. s.
May	20	11 38 8.65

β Leonis.

February	22	11 41 24.20
April	2	24.26
	6	24.20
	16	24.21
	18	24.25
	30	24.31
May	1	24.26
	2	24.12
	6	24.29
	9	24.27
	11	24.26
	13	24.21
	16	24.25
	21	24.34
October	28	24.23

β Virginis.

February	26	11 42 52.83
May	20	52.63

γ Ursæ Minoris.

April	2	11 45 55.16
	4	55.20
	15	55.05
	29	55.35
May	9	54.96
	11	54.97
	13	54.93
October	28	54.99

β Corvi.

February	22	12 26 30.90
April	2	30.75
	6	30.90
	15	30.87
	29	30.86
May	1	30.96
	6	30.85
	9	30.95
	11	30.86
	13	30.90
	16	30.75
	18	30.92
	21	30.96
	28	30.85

Weisse XII, 708.

April	30	12 41 23.25
May	6	23.67

12 Canum Venaticorum.

April	2	12 49 0.29
	4	0.12
	6	0.11
	15	0.22
	29	0.16
May	1	0.29
	2	0.19
	16	0.06
	18	0.24
	22	0.21

12 Canum Venaticorum—Continued.

		h. m. s.
May	28	13 49 0.04
June	3	48 59.98
October	27	49 0.16
November	10	48 59.92

θ Virginis.

May	21	13 2 11.29

α Virginis.

April	29	13 17 17.77
	30	17.64
May	2	17.61
	9	17.72
	13	17.73
	18	17.75
	22	17.67
June	3	17.57
	5	17.66
	10	17.65
	12	17.81
	19	17.81
July	5	17.95
	11	17.88
	19	17.70
September	3	17.74
	23	17.52
October	27	18.83
November	8	17.92

η Ursæ Majoris.

April	15	13 41 37.46
	29	37.47
May	2	37.80
	9	37.46
	16	37.37
	18	37.66
June	4	37.35
	5	37.30
	10	37.43
	13	37.44
	19	37.33
October	15	37.15
	27	37.49
	28	37.65
November	8	37.71
	21	37.48

η Bootis.

April	4	13 47 32.50
	15	32.53
	29	32.41
May	2	32.57
	9	32.47
	16	32.44
	18	32.37
June	4	32.53
	5	32.40
	10	32.37
	13	32.49
	19	32.48
July	11	32.49
October	8	32.51
	15	32.64
	27	32.22
	28	32.48
November	8	33.08
	21	32.46

θ Centauri.

		h. m. s.
May	16	13 57 52.17
	27	52.34
	28	52.46
June	3	52.70
	5	52.22
	10	52.14

Hydræ, (4711.)

May	16	14 4 39.23
	27	39.42
June	3	39.06
	10	39.23

κ Virginis.

June	19	14 4 54.05

ι Virginis.

June	19	14 8 9.21

α Bootis.

April	29	14 8 49.42
	30	49.28
May	2	48.95
	9	49.17
	16	49.27
	18	49.09
	20	49.15
	27	49.20
	28	49.40
June	3	49.09
	5	49.20
	10	49.16
	12	49.17
	13	49.19
	24	49.08
	25	49.15
July	5	49.29
	11	49.21
October	3	49.80
	7	49.43
	8	49.20
	10	49.22
	15	48.96
	22	49.17
	28	49.25
	31	49.03
November	3	49.02
	10	49.44
	13	49.19
	21	49.23

Hydræ, (4763.)

May	16	14 14 27.81
	27	27.94
June	5	27.83
	10	27.83

Hydræ, (4784.)

May	27	14 19 24.24
June	3	23.86
	5	24.19
	7	24.10
	10	23.90

Libræ, (4854.)

		h. m. s.
May	16	14 34 33.92
June	3	33.73
	5	33.89
	7	33.96
	10	33.94
	24	33.85

ε Bootis.

April	15	14 38 26.26
	30	26.13
May	16	26.15
	18	26.16
	20	26.14
	27	26.20
	28	26.31
June	4	26.01
	7	26.17
	10	26.04
	11	26.00
	12	26.13
	13	26.06
	19	26.09
July	1	25.87
October	3	26.70
	5	26.38
	7	26.33
	8	26.13
	10	26.11
November	13	25.96
	20	25.87
	24	26.14

α^2 Libræ.

April	4	14 42 35.28
	15	35.21
	29	35.18
May	2	35.27
	9	35.24
	16	35.28
	18	35.25
	20	35.33
	21	35.17
	27	35.31
	28	35.40
June	3	35.04
	4	35.25
	5	35.18
	7	35.23
	12	35.27
	13	35.30
	19	35.30
	24	35.19
July	1	34.86
October	3	35.79
	5	35.06

Libræ, (4913.)

May	21	14 45 38.50
June	7	38.02

ξ^2 Lyræ.

June	19	14 48 38.17

Hydræ, (4930.)

May	16	14 49 47.25
	21	47.01
June	5	47.11
	10	47.30

β Ursæ Minoris.

		h. m. s.
April	4	14 51 12.41
	15	11.96
	29	12.73
	30	12.40
May	2	11.95
	9	12.05
	18	12.19
	20	12.11
June	3	11.92
	13	11.63
October	10	11.48
November	20	11.83
	24	12.15

Comet-star.

July	1	14 51 32.24

Hydræ, (4940.)

May	16	14 53 10.55
	21	10.46
June	5	10.47
	10	10.61

Comet-star, $\delta + 59° 7'$.

July	1	14 53 29.16

Comet-star, $\delta + 59° 8'$.

July	1	14 53 42.63

ι Libræ.

July	1	15 3 40.50

Lupi, (5009.)

May	21	15 5 26.60
June	3	26.46
	5	26.74
	10	26.60

β^1 Libræ.

April	29	15 8 56.44
May	2	56.44
	16	56.38
	18	56.43
	21	56.24
	28	56.32
June	3	56.23
	4	56.44
	5	56.30
	7	56.38
	10	56.32
	12	56.37
October	3	57.03

Lalande, (27837.)

June	13	15 9 45.71

Lalande, (27852.)

June	13	15 10 5.34

Lalande, (28090.)

		h. m. s.
June	13	15 17 25.27

Comet-star, δ + 64° 54′.

June	21	15 18 16.18
	26	15.33

Lalande, (28251.)

May	27	15 23 26.67
June	13	26.72
	26	26.65

α Coronæ Borealis.

April	15	15 28 20.23
May	2	20.37
	9	20.09
	16	20.37
	21	20.27
	27	20.23
	28	20.16
June	3	20.04
	10	20.19
	11	20.33
	12	20.21
	13	20.22
	19	20.19
	24	19.99
	25	20.18
October	5	20.14
	28	20.52
November	4	20.23
	7	20.41
	13	20.41

Lalande, (28414.)

May	18	15 28 59.48

Lalande, (28446.)

May	18	15 29 55.91
	20	56.09

ψ¹ Lupi.

July	1	15 30 14.67
May	21	15.05

Lalande, (28466.)

May	16	15 30 32.40
	20	32.43

ψ² Lupi.

May	2	15 33 8.53
July	1	7.82

Anonyma.

May	20	15 36 37.64

α Serpentis.

April	4	15 36 52.94

α Serpentis—Continued.

		h. m. s.
May	2	15 36 52.89
	16	52.88
	21	52.81
	27	52.92
	28	52.87
June	3	52.81
	4	52.99
	5	52.87
	10	52.86
	12	52.89
	13	52.90
	19	52.91
	24	52.77
	25	52.95
July	1	52.61
October	1	52.64
	7	53.16
	9	52.84

Lalande, (28891.)

May	2	15 45 0.82

ζ Ursæ Minoris.

April	4	15 49 32.59
	15	31.99
	29	32.18
May	9	31.92
	16	31.69
	20	31.87
	21	31.87
	28	31.51
June	3	31.28
	4	31.48
	5	31.78
	10	31.58
	11	31.46
	12	31.57
	24	31.45
	26	31.24
July	1	32.35

β¹ Scorpii.

April	15	15 56 43.24
	29	43.34
May	9	43.29
	16	43.24
	20	43.19
	28	43.19
June	3	43.06
	10	43.29

Comet-star, δ + 70° 7′.

June	12	15 58 40.55
	24	40.78

Comet-star, δ + 70° 8′.

June	12	15 59 42.59
	24	42.88

Comet-star, δ + 69° 38′.

July	1	15 59 32.88

Comet-star, δ + 69° 39′.

July	1	15 59 54.41

c¹ Scorpii.

		h. m. s.
June	4	16 3 0.44
July	11	0.25

δ Ophiuchi.

April	15	16 6 29.32
	29	29.19
May	20	29.31
	27	29.32
June	5	29.24
	24	29.13
	25	29.26
July	5	29.19
	29	29.23

Anonyma, δ — 24° 44′.

May	9	16 6 43.18
July	1	42.87

Comet Star, δ + 71° 19′.

June	12	16 15 55.35

α Scorpii.

May	20	16 20 12.93
June	5	12.91
	25	13.04
July	1	12.54
	5	12.77
	11	14.75
	20	13.08
August	14	13.09

η Draconis.

April	29	16 21 58.38

Groombridge, (2356.)

June	12	16 26 59.19

ε Scorpii.

June	4	16 40 27.37
	5	27.18
	29	27.05
July	1	26.81
	11	27.24
	29	27.17
August	14	27.32

Comet Star, δ + 73° 9′.

June	5	16 56 37.17

(2411,) Groombridge.

June	4	16 59 16.86

ε Ursæ Majoris.

May	28	17 1 31.22
June	19	31.42
	29	31.34
July	20	30.40

η Ophiuchi.

		h. m. s.
April	29	17 1 46.77
July	19	46.83

2418, Groombridge.

June	3	17 3 33.90

2420, Groombridge.

June	3	17 4 29.60

A Ophiuchi.

June	29	17 6 7.27
July	29	7.50
August	7	7.85

Ophiuchi, (5813.)

July	29	17 7 0.23
August	7	0.21

Ophiuchi, (5815.)

August	14	17 7 14.13

α Herculis.

May	28	17 7 48.44
June	10	48.49
	12	48.49
	19	48.34
July	1	48.23
	11	50.41
	19	48.48
	20	48.42
November	13	48.58

Ophiuchi, (5831.)

August	7	17 8 52.03

Comet-star, δ + 73°. 35.

June	3	17 10 19.73
		19.52

ξ Ophiuchi.

April	29	17 12 0.99

Ophiuchi, (5846)

July	11	17 12 31.74

θ Ophiuchi.

June	29	17 12 47.74
July	19	48.05
August	7	48.01
	9	47.93

Comet-star, δ + 73° 36′.

June	11	17 17 42.40
	12	42.90

ν Scorpii.

		h. m. s.
May	21	17 20 34.39
	28	34.13
July	11	36.16
August	9	33.97

λ Scorpii.

May	21	17 23 25.81
July	11	27.53
August	9	25.39

β Draconis.

May	9	17 27 2.88
	21	2.80
	27	2.54

α Ophiuchi.

May	9	17 27 58.41
	21	58.44
	27	58.11
	28	58.30
June	3	58.18
	5	58.21
	10	58.36
	12	58.22
	19	58.29
July	1	58.08
	11	28 0.36
	19	58.31
	20	58.29
	23	58.39
	29	58.35
August	14	58.35
September	4	58.28
November	1	58.37
	4	(58.42)
	14	58.37

ο Serpentis.

May	27	17 32 58.93

Serpentis, (6066.)

May	28	17 47 57.32
June	10	57.47
July	11	59.46
	29	57.44
August	9	57.44

4 Sagittarii.

April	29	17 50 38.15

Sagittarii, (6080.)

June	3	17 50 59.58
	4	51 0.50
	7	50 59.85
August	14	50 59.82

γ Draconis.

June	3	17 53 7.37
August	27	7.39
September	4	7.25

Sagittarii, (6161).

		h. m. s.
August	7	18 2 34.11
	9	34.06
	16	34.20

μ^1 Sagittarii.

April	29	18 4 47.68
May	28	47.42
June	3	47.42
	5	47.61
	10	47.57
	24	47.73
	29	47.45
July	1	47.15
	11	49.63
	19	47.57
	23	47.68
	29	47.51
August	2	47.57
	12	47.53
	14	47.56
	27	47.57
	28	47.61
September	4	47.57

ε Sagittarii.

May	28	18 14 12.66
June	3	12.66
August	9	12.68

δ Ursæ Minoris.

May	28	18 20 43.65
June	10	43.06
	29	45.00
July	1	45.76
	11	46.13
	19	43.69
	23	41.71
	29	43.61
August	2	44.26
	7	45.27
	9	44.34
	14	42.89
	26	43.81
	28	45.42

Sagittarii, (6304.)

June	3	18 24 3.94

Sagittarii, (6314.)

June	3	18 25 21.89

α Lyræ.

May	27	18 31 51.48
	28	51.52
June	3	51.60
	5	51.41
	10	51.63
	24	51.81
	29	51.53
July	1	51.20
	11	53.41
	19	51.49
	23	51.36
	24	51.47
	27	51.48
August	2	51.48

α Lyræ—Continued.

		h. m. s.
August	7	18 31 51.52
	12	51.31
	14	51.42
	16	51.49
	26	51.52
	27	51.52
September	4	51.57
November	26	51.52

φ Sagittarii.

May	27	18 36 15.48
	28	16.74

β^1 Lyræ.

June	10	18 44 32.66
	29	32.53
July	11	34.45
	19	32.47
	23	32.41
	24	32.45
	27	32.41
	29	32.53
August	2	32.46
	7	32.42
	9	32.47
	14	32.34
	16	32.49
	26	32.50
	27	32.42
	28	32.37
September	4	32.48
	17	32.44

σ Sagittarii.

June	24	18 55 42.01
August	28	41.38

Lalande, (35540.)

September	23	18 55 21.69

ζ Aquilæ.

June	24	18 58 31.11
July	1	30.68
	11	32.96
	19	30.95
	23	30.94
	24	30.86
	27	30.97
August	14	30.93
	26	31.01
September	17	30.92
	21	30.94
	27	30.84

π Sagittarii.

May	28	19 0 50.32
June	24	50.78

δ Aquilæ.

July	1	19 17 55.71
	19	55.96
	23	56.09
	24	55.94
	29	56.02

δ Aquilæ—Continued.

		h. m. s.
August	2	19 17 56.02
	7	56.06
	9	56.04
	12	56.10
	14	56.05
	26	55.97
	27	56.01
	28	56.01
	30	56.04
September	3	56.04
	16	56.06
	21	56.03
	23	56.18
	27	56.14
October	1	55.90
	5	55.97

λ^2 Sagittarii.

July	23	19 27 34.54

σ^2 Sagittarii.

July	23	19 33 56.24

γ Aquilæ.

July	19	19 39 7.60
	23	7.60
	24	7.65
	27	7.66
	29	7.60
August	2	7.65
	7	7.61
	9	7.60
	12	7.64
	14	7.52
	16	7.63
	27	7.64
	28	7.66
	30	7.62
September	3	7.54
	16	7.64
	17	7.68
	21	7.64
	23	7.67
	27	7.55
October	1	7.57
	5	7.58
	7	7.56
	9	7.56

α Aquilæ.

July	19	19 43 27.82
	23	27.69
	24	27.76
	27	27.76
	29	27.74
August	2	27.72
	7	27.75
	9	27.70
	12	27.85
	14	27.77
	16	27.80
	26	27.69
	27	27.71
	28	27.74
September	3	27.76
	16	27.78
	17	27.66
	21	27.71

α Aquilæ—Continued.

		h. m. s.
September	23	19 43 27.76
	27	27.69
October	1	27.70
	3	28.06
	5	27.72
	7	27.73
	9	27.68

β Aquilæ.

July	19	19 47 56.65
	23	56.67
	24	56.59
	27	56.64
	29	56.62
August	2	56.67
	7	56.67
	9	56.58
	12	56.69
	14	56.70
	16	56.61
	26	56.58
	27	56.67
	28	56.61
September	3	56.70
	17	56.65
	21	56.61
	23	56.59
	27	56.59
October	1	56.58
	3	57.06
	5	56.64
	7	56.64
	9	56.58

a^2 Capricorni.

July	24	20 9 43.76
August	9	43.62
	30	44.68
September	21	43.60
October	3	43.98
	7	43.60
	9	43.62

β Capricorni.

July	24	20 12 34.69

α Cygni.

July	24	20 36 18.94
August	9	19.02
September	16	19.00
	21	18.98
	23	18.97
October	1	18.91
	9	19.13

η Capricorni.

October	9	20 55 51.75

61¹ Cygni.

		h. m. s.
August	9	21 0 10.58
October	1	10.48

ν Aquarii.

September	17	21 1 25.01

ζ Cygni.

July	24	21 6 33.28
August	9	33.18
September	17	33.12
	21	33.25
	23	33.19
October	1	33.16
	3	32.02
	22	33.09
	31	33.12
November	2	33.14

α Cephei.

August	9	21 14 59.89
September	21	59.67
October	22	59.43

Piscis Australis, (7458.)

October	3	21 20 4.19

β Aquarii.

July	24	21 23 39.52
September	17	39.54
	21	39.55
October	22	39.49

β Cephei.

September	23	21 26 42.16
October	9	42.58
	31	42.12
November	2	42.36

Weisse XXI, 662.

November	5	21 27 38.11

ε Capricorni.

July	24	21 28 40.37

κ Capricorni.

July	24	21 34 16.37

ε Pegasi.

		h m s.
July	24	21 36 49.07
August	9	49.14
September	21	49.08
	23	49.00
October	3	48.70
	7	49.06
	22	49.03
	31	49.15
November	1	49.13
	2	49.04
	5	49.00

α Aquarii

September	17	21 58 4.61
October	3	3.64
	7	4.57
	9	4.68
	31	4.68
November	1	4.67
	4	4.66
	5	4.65
	9	4.43

α Gruis.

November	13	21 58 44.87

Piscis Australis, (7714.)

September	23	22 1 20.75
November	5	20.50

λ Piscis Australis, (7750.)

September	23	22 5 48.15
November	1	47.98
	5	47.86

ζ Pegasi.

September	23	22 33 59.07
October	1	58.92
	3	58.60
	7	58.75
	9	58.83
	31	58.89
November	1	53.85
	2	58.92
	4	58.85
	5	58.90
	9	60.65
	13	58.89
	21	58 86

Piscis Australis, (7909.)

October	22	22 34 0.90
November	9	0.65

λ Aquarii.

		h. m. s.
November	13	22 44 47 10

α Piscis Australis.

September	21	22 49 21.00
October	3	20.58
	7	20.83
	22	21.08
	21	21.00
November	1	20.98
	4	20.93
	5	20.93
	9	20.86
	13	20.88
	21	20.96

α Pegasi.

October	3	22 57 17.46
	22	17.53
	31	17.44
November	2	17.36
	4	17.48
	5	17.42
	9	17.45
	13	17.36
	14	17.49
	21	17.56

φ Aquarii

November	13	23 6 33.02
	14	33.09

ψ^2 Aquarii.

November	13	23 11 9.24
	14	9.31

Weisse XXIII, 602.

November	13	23 29 9.69

ι Piscium.

November	1	23 32 14.15
	5	14.24
	9	14.03
	21	14.22
	30	14.07

γ Cephei.

October	3	23 33 14.24

Piscium, (8368.)

November	14	23 56 39.47

POLARIS, R.A., 1h. 5m. 1s.

	hh.	° ′ ″
March	24, 1.4	+ 88 30 34.64

POLARIS, S. P.

March	19, 1.4	+ 88 30 36.14
April	30, 1.4	35.86
May	2, 1.4	35.04
	9, 1.4	35.75
	11, 1.4	35.03
	14, 1.4	35.96

γ CETI, R.A., 2h. 35m. 32s.

January	12	+ 2 36 (0.29)

α CETI, R.A., 2h. 52m., 27s.

January	12	+ 3 29 (51.74)

α PERSEI, R. A., 3h. 13m. 38s.

January	12	+ 49 19 (19.31)

η TAURI, R.A., 3h. 38m. 34s.

January	4	+ 23 38 13.85
	12	(10.68)
	23	13.39

γ¹ ERIDANI, A.R., 3h. 51m. 2s.

January	12	— 13 56 (18.58)

h TAURI, R.A., 3h. 52m. 22s.

January	4	+ 12 3 45.42

α TAURI, R.A., 4h. 27m. 19s.

January	12	+ 16 12 (10.64)
		10.45

LALANDE, 9106, R.A., 4h. 44m. 5s.

January	23	+ 43 48 34.58

α AURIGÆ, R.A., 5h. 5m. 37s.

January	4	+ 45 50 20.34
	12	(19.37)

β ORIONIS, R.A., 5h. 7m. 20s.

February	3	— 8 22 (41.37)

β TAURI, R.A., 5h. 16m. 49s.

January	4	+ 28 28 31.03
	12	(28.27)
February	3	(31.92)
	7	30.47

δ ORIONIS, R.A., 5h. 24m. 21s.

January	4	— 0 24 52.91
February	3	(49.88)

ε ORIONIS, R.A., 5h. 28m. 36s.

		° ′ ″
January	12	— 1 18 (8.11)
February	7	8.29

α COLUMBÆ, R.A., 5h. 34m. 13s.

January	4	— 34 9 23.41

α ORIONIS, R.A., 5h. 47m. 3s.

January	12	+ 7 22 (27.87)
February	3	(30.11)

51 (HEV.) CEPHEI, R.A., 6h. 28m. 34s.

	hh.	
February	6, 1.4	+ 87 15 22.03

51 (HEV.) CEPHEI, S. P.

	hh.	
July	30, 1.4	+ 87 15 20.83

α CANIS MAJORIS, R A., 6h. 38m. 32s.

January	12	— 16 30 (49.38)
February	3	(43.61)

ε CANIS MAJORIS, R.A., 6h. 52m. 44s.

February	6	— 28 46 16.05
March	10	16.45

δ GEMINORUM, R.A., 7h. 11m. 10.

January	12	+ 22 15 (12.27)
February	6	13.70
	10	13.51
March	31	12.57

α¹ GEMINORUM, R.A., 7h. 25m. 0s.

February	6	+ 32 12 41.32
	10	41.29

α² GEMINORUM, R.A., 7h. 25m. 1s.

February	6	+ 32 12 44.11
	10	43.68
March	10	42.66

α CANIS MINORIS, R.A., 7h. 31m. 27s.

February	6	+ 5 36 21.01

AQUARII, (2551,) R.A., 7h. 35m. 23s.

March	31	+ 24 45 10.76

β GEMINORUM, R.A., 7h. 36m. 8s.

January	27	+ 28 23 1.53
February	6	2.51
	10	1.78
March	10	1.16

ε HYDRÆ, R.A., 8h. 38m. 50s.

		° ′ ″
February	26	+ 6 57 57.52
March	23	57.55
	31	56.27

ι URSÆ MAJORIS, R.A., 8h. 48m. 55s.

February	6	+ 48 37 35.49
March	23	35.54
April	5	35.23

α HYDRÆ, R A., 9h. 20m. 13s.

April	6	— 8 0 41.02

LEONIS, (3250,) R.A., 9h. 23m. 51s.

February	6	+ 11 57 41.42

ε LEONIS, R.A., 9h. 37m. 20s.

February	6	+ 24 27 45.25
March	24	44.07
April	6	42.64

α LEONIS, R.A., 10h. 0m. 23s.

March	24	+ 12 41 54.59
April	20	53.37

WEISSE X, — 456, R A., 10h. 26m. 1s.

May	2	— 3 30 13.29

(°) R.A., 10h. 26m. 21s.

April	30	— 4 6 11.73

(°) R.A., 10h. 28m. 10s.

April	30	— 3 49 50.64

WEISSE X, — 577, R.A., 10h. 28m. 55s.

May	2	— 4 3 13.06

(°) R.A., 10h. 28m. 55.

April	30	— 4 8 25.88

WEISSE X, — 637, R.A., 10h. 35m. 27.

May	2	— 3 37 24.84

WEISSE X, — 801, R.A., 10h. 45m. 2s.

April	30	— 0 44 33.72
May	2	36.73

(°) R.A., 10h. 46m. 2s.

April	30	— 0 33 26.87

WEISSE X, — 859, R A., 10h. 46m. 55s.

April	30	— 0 43 16.77
May	2	15.83

(°) R.A., 10h. 47m. 37s.

	′	° ′ ″
April	30	— 0 37 35.49

LALANDE, 21026, R.A., 10h. 48m. 27s.

April	30	— 0 49 10.96
May	2	10.59

α URSÆ MAJORIS, R.A., 10h. 54m. 26s.

November	2	+ 62 33 34.53

δ LEONIS, R.A., 11h. 6m. 7s.

March	29	+ 21 20 40.15

β LEONIS, R.A., 11h. 41m. 24s.

April	30	+ 15 24 36.94

η VIRGINIS, R.A., 12h. 12m. 14s.

April	5	+ 0 10 2.41

β CORVI, R.A., 12h. 26m. 31s.

April	30	— 22 33 (63.91)
May	2	58.77
	11	61.22

α VIRGINIS, R A., 13h. 17m. 18s.

June	4	— 10 22 35.50

BESSEL Z., — 460, R.A., 13h. 38m. 18s.

May	2	+ 22 32 24.74

(°) R.A., 13h. 41m. 33s.

May	2	+ 22 46 15.26

η URSÆ MAJORIS — 13h. 41m. 37s.

May	14	+ 50 3 49.83
June	4	48.92

BESSEL ZONE, 412, R.A., 13h. 42m. 1s.

April	20	+ 23 1 57.98

(°) R.A., 13h. 43m. 16s.

May	2	+ 22 42 40.76

(°) R.A., 13h. 50m. 22s.

April	19	+ 24 6 13.99
	20	14.41

BESSEL ZONE, 412, R.A., 13h. 51m. 32s.

April	20	+ 23 36 4.51

BESSEL ZONE, 412, R.A., 13h. 52m. 44s.

April	20	+ 23 39 35.30

(°) R.A., 13h. 52m. 58s.

		° ′ ″
April	19	+ 24 1 48.04
May	2	47.51

B. Z., 412, R.A., 13h. 54m. 31. 5s.

April	19	+ 23 55 57.28
May	2	56.47

(°) R.A., 13h. 59m.

April	19	+ 23 54 59.39

Bessel Z., 412, R.A., 13h. 59m. 23s.

April	19	+ 24 6 27.47
May	2	25.78

α Bootis, R.A., 14h. 8m. 49s.

April	30	+ 19 57 55.08
May	2	56.15
June	4	56.73
	5	56.80

ε Bootis, R.A., 14h. 38m. 26s.

April	3	+ 27 42 33.24
	5	33.03
June	11	31.39
	22	33.61

Libræ, (4894,) R. A., 14h. 42m. 24s.

June	20	— 15 22 11.65
	22	12.82

α^2 Libræ, R. A., 14h. 42m. 35s.

June	4	— 15 24 54.51
	20	54.29
	22	54.29

β Ursæ Minoris, R. A., 14h. 51m. 12s.

April	30	+ 74 46 5.63
May	14	6.26
June	5	5.30
	11	(9.80)

β Libræ, R. A., 15h. 8m. 56s.

March	29	— 8 49 32.64
April	30	34.56
May	14	33.55
June	4	33.03
	5	34.36
	11	33.56
	16	31.45
	20	32.66

α Coronæ Borealis, R. A., 15h. 28m. 20s.

May	14	+ 27 13 21.52
	19	22.61
June	4	21.75
	11	21.10

α Serpentis, R. A., 15h. 36m. 53s.

		° ′ ″
May	19	+ 6 54 5.34
June	11	4.90

ζ Ursæ Minoris, R. A., 15h. 49m. 32s.

May	18	+ 78 15 12.35

β^1 Scorpii, R. A., 15h. 56m. 3s.

May	14	— 19 23 24.70
	18	24.06
June	11	24.37

δ Ophiuchi, R. A., 16h. 6m. 29s.

May	14	— 3 18 14.63
June	11	12.97

α Scorpii, R. A., 16h. 20m. 13s.

May	18	— 26 5 38.64
June	11	38.55

η Ophiuchi, R. A., 17h. 1m. 47s.

July	3	— 15 32 1.95

Ophiuchi, (5846) R. A., 17h. 12m. 30s.

July	3	— 24 50 38.94

θ Ophiuchi, R. A., 17h. 12m. 48s.

July	3	— 24 50 38.94

α Ophiuchi, R.A., 17h. 27m. 58s.

July	3	+ 12 40 24.57

Sagittarii, (6067) R.A , 17h. 50m. 38s.

July	2	— 23 47 47.70
	3	47.99

γ Draconis, R.A., 17h. 53m. 7s.

July	5	+ 51 30 30.15

μ^1 Sagittarii, R.A., 18h. 4m. 47s.

July	3	— 21 5 31.85
	5	33.13

δ Ursæ Minoris, R.A., 18h. 20m. 44s.

July	30	+ 86 35 50.76

α Lyræ, R.A., 18h. 31m. 51s.

July	3	+ 38 38 49.17
	5	48.64

β Lyræ, R.A., 18h. 44m. 32s.

		° ′ ″
July	3	+ 33 11 29.45
	5	29.22
	30	29.31

ζ Aquilæ, R.A., 18h. 58m. 31s.

June	18	+ 13 38 40.21
July	30	39.25

α Aquilæ, R.A., 19h. 43m. 28s.

September	28	+ 8 28 33.25

β Aquilæ, R.A., 19h. 47m. 57s.

September	24	+ 6 2 10.28
	27	10.56
	28	8.10

α^1 Capricornii, R.A., 20h. 9m. 20s.

September	24	— 12 58 2.65

α^2 Capricornii, R.A., 20h. 9m. 43s.

September	24	— 13 0 19.37
	27	19.11
	28	21.92

β Capricorni, R.A., 20h. 12m. 34s.

September	27	— 15 15 2.00

Capricorni, (7134,) 20h. 31m. 30s.

September	27	— 18 39 45.21

α Cygni, R.A., 20h. 36m. 19s.

September	27	+ 44 44 48.41

61^1 Cygni, R.A., 21h. 0m. 10s.

September	27	+ 38 0 53.50
	28	52.78

61^2 Cygni, R.A., 21h. 0m. 10s.

September	27	+ 38 0 49.76
	28	49.20

Capricorni, (7374) R.A., 21h. 7m. 26s.

October	25	— 15 47 29.34

ζ Cygni, R.A., 21h. 6m. 33s.

September	28	+ 29 36 49.76
November	5	50.86

α Cephei, R.A., 21h. 24m. 59s.

September	24	+ 61 57 5.73
	28	4.65

β Aquarii, R.A., 21h. 23m. 39s.

		° ′ ″
September	24	— 6 13 41.14
	28	43.21
October	8	43.31
	25	41.36
November	5	41.60

β Cephei, R.A., 21h. 26m. 42s.

September	24	+ 69 54 10.61
October	25	9.84

γ Capric., (7525,) R.A., 21h. 31m. 46s.

September	27	— 17 20 12.48
	28	13.66

ε Pegasi, R.A., 21h. 36m. 49s.

September	24	+ 9 11 24.67
October	8	24.06
November	5	23.31

δ Capric., (7850,) R.A., 21h. 38m. 45s.

September	27	— 16 47 18.30
	28	19.76

Lalande, 42700, R.A., 21h. 47m. 16s.

October	8	— 21 50 44.39
	11	44.14
	25	45.11
	27	45.43

(°) R.A., 21h. 48m. 14s.

November	7	— 21 28 24.58

(°) R.A., 21h. 49m. 0s.

October	8	— 21 50 42.51

(°) R.A., 21h. 50m. 56s.

November	2	— 21 26 53.54
	5	54.73
	7	53.93

Aquarii, (7649,) R.A., 21h. 50m. 22s.

October	8	— 21 53 43.84
	11	43.77
	25	45.10
	27	46.41

(°) R.A., 21h. 50m. 59s.

November	2	— 20 43 6.85

Lalande, 42984, R.A., 21h. 55m. 49s.

October	25	— 22 30 12.35
	27	14.49

(°) R.A., 21h. 57m. 34s.

		° ′ ″
November	2 . .	— 20 29 57.31
	5 . .	59.89
	7 . .	60.70

α Aquarii, R.A., 21h. 58m. 4s.

September	24 . .	— 1 2 45.32

(°) R.A., 21h. 59m. 28s.

November	7 . .	— 20 25 3.25

Lalande, 43106, R.A., 21h. 59m. 31s.

October	25 . .	— 22 19 17.89
	27 . .	18.83

θ Aquarii, (7773,) R.A., 22h. 8m. 55s.

		° ′ ″
September	28 . .	— 8 31 41.94

Aquarii, (7818,) R.A., 22h. 18m. 25s.

November	7 . .	— 17 30 6.55

Aquarii, (7819,) R.A., 22h. 18m. 25s.

November	7 . .	— 17 30 11.91

Aquarii, (7840,) R.A., 22h. 22m. 42s.

October	26 . .	— 11 26 37.28
	27 . .	36.98

ζ Pegasi, R.A., 22h. 33m. 59s.

		° ′ ″
October	27 . .	+ 10 2 59.73

Aquarii, (7970,) R.A., 22h. 44m. 47s.

October	27 . .	— 8 22 35.31

α Piscis Austral., R.A., 22h. 49m. 21s.

October	11 . .	— 30 24 56.42
	27 . .	58.93
November	2 . .	57.12

α Pegasi, R.A., 22h. 57m. 17s.

		° ′ ″
October	11 . .	+ 14 23 59.00

γ Cephei, S. P., R.A., 23h. 33m. 14s.

March	29 . .	+ 76 47 42.64
May	2 . .	43.80

Piscium, (8271,) R.A., 23h. 40m. 13s.

October	27 . .	— 3 35 39.18

Piscium, (8328,) R.A., 23h. 50m. 59s.

October	27 . .	— 4 23 16.07

α Cassiopeiæ, R. A., 0h. 32m. 25s.

	° ′ ″
November 14	+ 55 42 50.17

Polaris, R A, 1h. 5m. 1s.

October 15	+ 88 30 33.39
November 4	34.80
14	33.15

Polaris, S. P.

September 3	+88 30 35.61
October 4	35.32
8	34.44
November 10	36.74

α Aurigæ, R.A., 5h. 5m. 37s.

July 2	+ 45 50 20.93

α Virginis, R.A., 13h. 17m. 18s.

July 19	— 10 22 36.20

η Bootis, R A., 13h. 47m. 33s.

July 25	+ 19 9 5.91

Centauri, (4686,) R.A., 13h. 57m. 52s.

June 5	— 35 37 46.07
10	43.80
11	45.34

Hydræ, (4711,) R.A., 14h. 4m. 39s.

June 5	— 25 54 17.84
10	17.34
11	18.80

α Bootis, R.A., 14h. 8m. 49s.

July 25	+ 19 57 55.35

Hydræ, (4763,) R.A., 14h. 14m. 28s.

June 5	— 27 3 44.73
10	43.67
11	44.72

Hydræ, (4784,) R.A., 14h. 19m. 24s.

June 5	— 28 48 51.65
10	50.64
11	52.68

Bootis, (4812,) R.A., 19h. 26m. 2s.

June 5	+ 38 58 0.30
11	0.29

Libræ, (4854,) R.A., 19h. 34m. 34s.

June 5	— 24 21 17.28
10	16.36
11	17.32

(°) R.A., 14h. 38m.

	° ′ ″
June 3	+ 27 9 7.80

ε Bootis, R.A., 14h. 38m. 26s.

July 25	+ 27 42 33.18

Libræ, (4913,) R.A, 14h. 45m. 38s.

June 5	— 24 1 29.83
10	29.60
11	30.02

Lalande, 27221, R.A., 14h. 49m. 8s.

August 26	— 22 24 0.26

Hydræ, (4930,) R A., 14h. 49m. 50s.

June 5	— 27 3 4.83
10	4.29
11	4.63

β Ursæ Minoris, R.A., 14h. 51m. 12s

June 3	+ 74 46 5.81
November 8	6.90

Hydræ, (4940,) 14h. 53m. 11s.

June 5	— 27 27 44.98
10	44.63
11	44.27

(23) R.A., 14h. 53m. 43s.

June 30	+ 59 7 45.07
July 1	45.59
3	47.61
5	47.58

Lupi, (5009,) R.A., 15h. 5m. 27s.

June 5	— 30 57 17.45
10	18.07
11	17.92

β Libræ, R.A., 15h. 8m. 56s.

July 11	— 8 49 34.52
August 14	34.84

(21) R.A., 15h. 18m. 14s.

June 30	+ 64 54 18.58
July 5	18.77

α Coronæ Borealis, R.A., 15h. 28m. 20s.

July 11	+ 27 13 20.49

Lupi, (5160,) R.A., 15h. 30m. 15s.

June 5	— 33 55 2.83

Lupi, (5173,) R.A., 15h. 33m. 9s.

June 5	— 34 13 25.24

ξ Ursæ Minoris, R.A., 15h. 49m. 32s.

	° ′ ″
July 23	+ 78 15 13.79

β¹ Scorpii, R.A., 15h. 56m. 43s.

August 14	— 19 23 24.74

(°) R.A., 15h. 59m.

June 13	+ 69 39 46.54

(19) R.A., 15h. 59m. 33s.

June 13	+ 69 37 50.39

(18) R.A., 15h. 59m. 43s.

July 1	+ 70 8 26.50
3	28.33

(20) R.A., 15h. 59m. 54s.

June 13	+ 69 38 35.33

2319, Groombridge, R.A, 16h. 5m.

June 11	+ 70 39 46.60

Arg. Z., 115, 156, R. A., 16h. 8m. 21s.

June 11	+ 70 43 24.47

Arg. Z., 115, 164, R.A., 16h. 15m. 46s.

June 10	+ 71 12 17.75
11	17.11

Arg. Z., 115, 165, R.A., 16h. 15m. 56s.

June 10	+ 71 18 35.76
11	36.50

α Scorpii, R.A., 16h. 20m. 13s.

August 14	— 26 5 38.78

η Draconis, R.A., 16h. 21m. 58s.

June 3	+ 61 51 16.35

2356, Groombridge, R.A., 16h. 27m.

June 11	+ 71 43 5.05

(13) R.A., 16h. 56m. 37s.

June 11	+ 73 9 4.72

Ursæ Min., (5769,) R.A., 16h. 59m. 18s.

June 5	+ 73 21 10.22
10	10.95

ε Ursæ Minoris, R.A., 17h. 1m. 31s.

July 3	+ 82 16 32.41
10	32.60

2418, Groombridge, R.A., 17h. 3m.

	° ′ ″
June 3	+ 73 24 10.03
5	12.60
11	11.14

2420, Groombridge, R.A., 17h. 4m.

June 3	+ 73 31 3.58
5	6.05
11	3.48

Ophiuchi, (5813,) R.A., 17h. 7m. 0s.

August 12	— 26 19 27.41

α Herculis, R.A., 17h. 7m. 48s.

July 19	+ 14 33 55.20
September 12	55.28

(12) R.A., 17h. 17m. 43s.

June 3	+ 73 35 (48.80)
10	53.89
11	53.32

Scorpii, (5901,) R.A., 17h. 20m. 34s.

August 9	— 37 10 11.61
12	13.17

Scorpii, (5915,) R.A., 17h. 23m. 26s.

August 9	— 36 59 16.95
12	19.32

β Draconis, R.A., 17h. 27m. 3s.

July 1	+ 52 24 51.78
11	52.48
24	51.91
August 31	52.29
September 12	52.24
13	51.98

Serpentis, (6066,) R.A., 17h. 47m. 58s.

September 5	— 23 54 43.68

γ Draconis, R.A., 17h. 53m. 7s.

July 3	+ 51 30 30.89
10	30.97
11	30.31
19	30.32
23	31.11
24	31.09
August 9	31.76
12	30.82
28	30.44
29	31.43
30	30.76
31	30.67
September 10	31.14

μ¹ Sagittarii, R.A., 18h. 4m. 48s.

August 28	— 21 5 31.93
29	31.01

μ^1 Sagit, R A., 18h. 4m. 48s.—Cont'd.

		° ′ ″
August	30	— 21 5 31.77
September	3	31.01
	4	32.65
	5	33.58
	6	32.46
	10	32.97
	11	34.20
	13	32.31
	17	32.53
	23	32.78

Sagittarii, (6304,) R.A., 18h. 24m. 4s.

August	9	— 24 12 46.05
	12	46.10

Sagittarii, (6314,) R.A., 18h. 25m. 22s.

August	12	— 24 19 51.66

α Lyræ, 18h. 31m. 52s.

June	10	+ 38 38 49.04
July	11	49.21
	23	49.67
August	16	49.47
	28	49.16
	30	48.25
	31	49.64
September	3	48.68
	4	48.83
	6	50.24
	10	48.75
	11	48.30
	13	49.82
	16	49.52
	17	50.35
	23	50.02
	29	50.27

Sagittarii, (6461,) R.A., 18h. 48m. 47s.

October	12	— 21 17 52.65

Sagittarii, (6507,) R.A., 18h. 55m. 41s.

		° ′ ″
August	16	— 21 57 20.49
	26	21.64
	28	19.90
	29	20 55
	30	20.60
	31	20.99
September	2	21.08
	3	20.58
	4	21.26
	5	20.85
	6	22.32
	10	20.96
	11	21.91
	16	20.32

ζ Aquilæ, R.A., 18h. 58m. 31s.

July	23	+ 13 38 41.26
	9	40.27
August	23	40.87
October	1	40.66

δ Aquilæ, R.A., 19h. 17m. 56s.

August	9	+ 2 49 12.92
	12	12.91
	23	12.64
	26	12.49
	31	11.84
September	2	11.73
	3	12.66
	6	11.34
	16	12.40
	17	13.12
	23	12.17
October	1	11.80

Sagittarii, (6726,) R.A., 19h. 30m. 48s.

August	29	— 23 45 48.06
September	4	45.33

Sagittarii, (6742,) R.A., 19h. 33m. 56s.

		° ′ ″
September	16	— 16 28 14.37

γ Aquilæ, R.A., 19h. 39m. 8s.

September	24	+ 10 15 5.92

α Aquilæ, R.A., 19h. 43m. 28s.

August	16	+ 8 28 (36.23)
	23	34.60
September	2	34.80
	3	34.93
	6	33.81
	10	33.79
October	12	35.05

α^2 Capricorni, R.A., 20h. 9m. 44s.

September	16	— 13 0 20.14

α Cygni, R.A., 20h. 36m. 19s.

September	17	+ 44 44 47.55
	24	47.55
October	14	48.28

61^1 Cygni, 21h. 0m. 10s.

October	3	+ 38 0 53.69
	23	53.33
	29	53.02
	31	53.42

β Aquarii, R.A., 21h. 23m. 39s.

September	21	+ 6 13 42.27

ε Pegasi, R.A., 21h. 36m. 49s.

		° ′ ″
September	23	+ 9 11 (25.10)
October	4	24.01
	7	24.68
	14	24.55
	15	23.13
	27	21.31

α Aquarii, R.A., 21h. 58m. 5s.

October	8	— 1 2 46.58
	9	44.23
November	9	44.42
	27	45.82

Piscis Austr., (7714,) R.A., 22h. 1m. 21s.

September	23	— 33 16 57.75
	24	58.23
October	2	55.92
	3	55.65
	4	58.30
	7	56.43

α Piscis Australis, R.A., 22h. 49m. 41s.

October	7	— 30 24 56.40
	9	57.11
November	6	57.26

α Pegasi, R.A., 22h. 57m. 17s.

October	4	+ 14 23 56.98
November	6	58.05

Weisse XXIII, 602, R.A., 23h. 29m. 46s.

November	13	+ 5 5 19.12
	14	16.75

ι Piscium, R.A., 23h. 32m. 14s.

November	6	+ 4 48 50.51
	7	50.21
	15	51.09

α Andromedæ.

		R.A.	Dec.
		h. m. s.	° ′ ″
April	30	0 0 38.53	+28 15
May	1	38.55	
	11	38.53	47.20
November	5	38.58	47.12
	21	38.63	
	28	38.60	
	30	38.66	
December	5	38.52	
	11	38.42	
	17	38.39	
	21	38.58	
	27	38.45	41.54

γ Pegasi.

May	1	0 5 30.93	
November	5	30.97	
	21	30.91	
	28	31.03	
	30	30.82	
December	17	31.03	
	21	30.97	
	24	30.97	

α Cassiopeiæ.

January	27	0 32 1.52	+55 42
May	11	1.45	49.80
November	5	1.42	51.49
	19	1.55	
	21	1.49	
	28	1.45	
December	5	1.41	
	24	1.52	

α Cassiopeiæ, S. P.

May	9	0 32 1.06	
	17	1.20	

Polaris.

January	27	1 4 60.70	+88 30 36.45
February	10	60.20	33.65
	16	61.34	
	23	60.66	
March	19	61.00	34.43
	22	58.67	31.10
	23	59.36	
	24	61.39	34.63
	31	60.90	
April	20	61.84	
	30	60.56	35.22
May	3	59.79	33.61
	4	61.03	34.05
	11	61.81	37.42
	22	60.51	35.42
November	5	64.15	31.98
	19	59.27	37.99
	28	59.03	
December	5	63.33	(27.62)
	7	60.43	
	11	60.36	
	17	60.14	
	24	60.75	
	27	61.45	30.83

Polaris, S. P.

February	15	1 4 61.80	+88 30
	23	58.64	
March	7	61.37	39.71

Polaris, S. P.—Continued.

		R.A.	Dec.
		h. m. s.	° ′ ″
March	19	1 4 61.07	+88 30 34.32
April	19	61.83	35.95
May	2	60.89	35.49
	9	60.66	35.32
	17	59.67	40.33
	31	62.88	
June	5	60.70	
	11	60.73	
	18	61.55	35.35
July	16	59.66	
	18	59.74	
	24	63.84	35.09
	30	(58.90)	
August	25	61.15	36.31
September	1	62.94	
	15	60.19	
	18	59.10	
	24	61.03	
	25	63.71	
October	19	62.55	
	22	63.31	32.57
November	4	60.82	
	19	61.75	33.43

θ Ceti.

December	7	1 16 31.50	
	24	31.57	

μ Piscium.

December	24	1 22 20.03	

γ Piscium.

December	24	1 33 38.01	

α Arietis.

January	27	1 58 43.60	+22 44 63.18
February	10	43.57	
	16	(43.96)	
May	3	43.51	
	22	43.63	

ξ^2 Ceti.

December	24	2 20 11.45	

γ Ceti.

January	10	2 35 31.91	+ 2 35
	18	31.81	60.95
	27	31.82	64.53

Anonymous.

December	27	2 47 40.42	+ 7 54 36.82

α Ceti.

January	4	2 54 26.57	+ 3 29
	10	26.36	
	18	26.83	51.99
February	3	26.61	57.32
December	31	26.59	

α Persei.

		R.A.	Dec.
		h. m. s.	° ′ ″
January	4	3 13 38.32	+49 19
	10	38.36	
	18	38.41	
	23	38.13	21.11
February	3	38.12	21.86
May	22	38.23	
June	14	38.35	
	17	38.33	
	21	(38.42)	
December	27	38.41	17.22
	31	38.16	

η Tauri.

January	4	3 38 34.64	+23 38 18.19
	10	34.52	
	18	34.66	12.93
	23	34.66	13.13
February	3	34.64	15.83
	9	34.44	17.11
	23	34.57	
December	31	34.57	

Anonymous.

January	23	3 47 48.15	+36 2 37.60

γ^1 Eridani.

January	2	3 51 (2.17)	+13 56
	10	1.91	
	11	1.99	
	18	1.89	22.49
February	3	1.96	18.64
	23	2.06	
December	27	1.98	
	31	1.99	

λ Tauri.

January	4	3 52 22.64	+12 3 38.26

γ Tauri.

December	27	4 11 15.61	+15 15 43.05

α Tauri.

January	2	4 27 18.93	+16 12
	10	18.98	
	11	19.08	
	18	(18.82)	
	23	19.11	10.42
February	7	(19.25)	
	9	19.08	
	10	19.09	10.53
	16	19.12	13.83
	19	18.89	
	23	19.05	12.37
April	16	19.19	
	21	19.13	
	23		12.01
May	4	18.99	12.87
June	14	19.01	
	17	19.02	
	21	19.06	
December	11	19.10	9.93
	27	18.98	(16.64)

ι Tauri.

December	27	4 54 8.10	+21 22 17.95

α Aurigæ.

		R.A. h. m. s.	Dec. ° ′ ″
January	2 . .	5 5 36.71	+45 50
	4 . .	36.56	13.09
	11 . .	(37.31)	
March	8 . .	36.83	19.88
	31 . .	36.94	
April	21 . .	36.86	
May	2 . .	36.83	
	4 . .	36.50	23.72
	12 . .	36.99	
	21 . .	36.88	
	23 . .	37.00	19.37
June	17 . .	36.92	
	21 . .	36.77	
July	15 . .	36.95	
	16 . .	36.89	
	22 . .	36.97	
December	17 . .	36.78	

β Orionis.

February	3 . .	5 7 19.84	— 8 23 41.25
	6 . .	19.75	43.41
	12 . .	19.80	
	19 . .	19.85	41.46
	23 . .	19.80	
May	2 . .	19.80	
	4 . .	19.91	
July	15 . .	19.84	
	16 . .	19.80	
	22 . .	19.80	

β Tauri.

January	2 . .	5 16 48.97	+28 28
	4 . .	48.84	34.07
	11 . .	48.99	
	18 . .	48.63	
February	3 . .	48.64	32.83
	7 . .	48.84	32.97
	12 . .	48.65	
	19 . .	48.69	36.11
	23 . .	48.75	31.50
March	8 . .	48.74	32.64
	19 . .	48.71	
	31 . .	48.79	
July	22 . .	48.74	
December	11 . .	48.77	31.11
	27 . .	48.74	

δ Orionis.

January	2 . .	5 24 20.67	— 0 24
	11 . .	20.64	
	18 . .	20.57	
February	3 . .	20.67	
	6 . .	20.70	51.82
	7 . .	20.46	
	12 . .	20.78	
	19 . .	20.63	
	23 . .	20.58	
March	7 . .	20.82	
	8 . .	20.79	
	19 . .	20.68	
	31 . .	20.73	
July	22 . .	20.76	

α Leporis.

February	12 . .	5 26 (7.14)	
	19 . .	7.04	
March	7 . .	6.93	
	8 . .	6.99	
	19 . .	6.94	
	31 . .	6.92	

ε Orionis.

		R.A. h. m. s.	Dec. ° ′ ″
January	11 . .	5 28 36.00	
	18 . .	(35.81)	
February	7 . .	36.23	
	12 . .	36.22	
	19 . .	36.35	
	23 . .	36.22	
March	8 . .	36.18	
	19 . .	36.29	
	31 . .	36.14	
July	22 . .	36.16	
	29 . .	36.12	

ζ Tauri.

February	3 . .	5 28 40.92	+21 2 47.04

α Columbæ.

January	4 . .	5 34 13.17	—34 9
	11 . .	13.15	
February	7 . .	13.10	27.84
	12 . .	13.22	
	19 . .	13 23	
	23 . .	13.28	
March	7 . .	13.15	
	8 . .	13.18	24.12
December	11 . .	13.09	

α Orionis.

January	4 . .	5 47 3.14	+ 7 22
	11 . .	3.11	
	18 . .	3.01	
February	3 . .	3.21	
	12 . .	2.97	
	19 . .	3.10	
March	19 . .	3.12	
	24 . .	3.13	
	31 . .	3.08	
July	15 . .	3.20	
	16 . .	3.14	
	18 . .	3.14	
	22 . .	3.04	
	29 . .	3.11	
December	11 . .	3.10	
	27 . .	3.11	

μ Geminorum.

January	27 . .	6 13 53.09	+22 35 7.79
February	3 . .	53.30	
	6 . .	53.14	
March	24 . .	53.04	10.84
	30 . .	53.14	
	31 . .	53.12	10.83

γ Geminorum.

February	3 . .	6 29 2.70	+16 31 21.14
March	31 . .	2.77	

ξ Geminorum.

March	31 . .	6 36 52.22	+13 2 11.93

α Canis Majoris.

		R A. h. m. s.	Dec. ° ′ ″
January	4 . .	6 38 32.17	—16 30 (44.94)
	18 . .	32.31	
	9 . .	32.45	
February	12 . .	32.36	
	16 . .	32.34	46.23
March	7 . .	32.22	
	19 . .	32.14	
	22 . .	32.18	
	24 . .	32.18	50.94
	30 . .	32.27	
April	2 . .	32.29	51.01
May	19 . .	32.47	46.94
	21 . .	32.38	46.94
	23 . .	32.25	51.24
June	18 . .	32.15	
	22 . .	32.07	
July	15 . .	32.19	
	17 . .	32.10	
	18 . .	32.32	51.25
	22 . .	32.38	
	29 . .	32.40	
August	12 . .	32.27	

ε Canis Majoris.

January	4 . .	6 52 43.86	—28 46 15.23
February	6 . .	43.94	15.76
	12 . .	43.86	
	16 . .	43.83	
March	7 . .	43.82	
	24 . .	43.87	18.90
	31 . .	43.79	16.27
April	2 . .	43.79	17.53
	11 . .	43.77	

δ Geminorum.

January	26 . .	7 11 9.57	+22 15
	27 . .	9.64	13.79
March	30 . .	9.65	
	31 . .	9.58	16.16
April	2 . .	9.64	
	11 . .	9.62	15.24
	16 . .	9.55	

α² Geminorum.

January	26 . .	7 25 1.27	+32 12
	27 . .	1.01	
February	6 . .	1.36	45.26
	9 . .	1.43	
	10 . .	1.32	44.30
March	30 . .	1.25	
April	2 . .	1.31	42.42
	11 . .	1.25	44.10
	16 . .	1.30	45.17
August	26 . .	1.18	

α Canis Minoris.

January	26 . .	7 31 26.83	+ 5 36
	27 . .	26.82	
February	6 . .	26.73	22.31
	9 . .	26.98	
	10 . .	26.80	
March	30 . .	26.82	
April	2 . .	(27.02)	19.77
	11 . .	(26.98)	20.53
	16 . .	26.80	
June	21 . .	26.78	
	22 . .	26.78	
July	22 . .	26.85	

α Canis Minoris—Continued.

		R.A. h. m. s.	Dec ° ′ ″	
August	16	7 31 26.73	+ 5 36	
	24	26.85		
	26	26.89		22.82

π Geminorum.

March	31	7 35 23.13	+24 45	12.84

β Geminorum.

January	26	7 36 7.78	+28 22	
	27	7.74		
February	9	7.78		
	10	7.66		
March	30	7.78		
April	2	7.79		60.49
	11	7.77		
	16	7.73		64.05
August	12	7.77		
	24	7.68		
	26	7.73		62.76

15 Argus.

March	30	8 1 9.37	—23 52	
April	2	9.37		29.79
	7	9.35		29.08
	11	9.36		30.15
	16	9.36		28.78

θ Cancri.

February	6	8 23 2.31	+18 35	54.87

δ Cancri.

February	6	8 36 9.20	+18 42	8.68
April	2	9.39		7.67

ε Hydræ.

January	23	8 38 49.71	+ 6 57	
April	11	49.77		56.71
	16	49.82		58.38
	19	49.73		55.51
May	2	49.70		56.97

ι Ursæ Majoris.

March	24	8 48 54.74	+48 37	35.33
April	7	54.77		38.52
	11	54.84		38.13
	16	54.77		36.92
	19	54.52		35.46
May	2	54.72		36.65
September	9	54.78		

α Cancri.

April	2	8 50 16.47	+12 26	6.97

α Hydræ.

February	9	9 20 12.77	— 8 0	39.32
March	24	13.08		
	30	12.75		40.21
	10	12.96		41.23

α Hydræ—Continued.

		R.A. h. m. s.	Dec. ° ′ ″	
April	11	9 20 12.94	— 8 0	
	14	12.83		
	16	12.85		
	19	12.99		40.89
May	1	12.95		39.41
	2	13.07		39.59
September	9	12.91		
	16	12.91		

ξ Leonis.

February	6	9 23 51.42	+11 57	43.23

o Leonis.

February	6	9 33 8.51	+10 34	22.10
April	2	8.43		20.07

ε Leonis.

January	23	9 37 19.73	+24 27	
February	9	19.63		
	19	19.55		42.68
March	24	19.44		47.07
	30	19.61		43.66
April	7	19.63		47.55
	10	19.53		45.80
	14	19.57		
	19	19.68		47.32
May	2	19.56		46.59
September	9	19.60		
	10	19.68		

η Leonis.

April	2	9 59 8.93	+17 29	33.36

α Leonis.

February	15	10 0 22.68	+12.41	
March	22	22.76		56.66
	24	22.77		55.03
April	7	22.70		56.38
	10	22.71		53.45
	19	22.72		54.28
May	19	22.67		58.07
June	22	22.95		
July	19	22.90		
September	9	22.63		
	10	22.73		
	12	22.70		
	16	22.68		
	24	22.71		52.63

Anonymous.

May	2	10 28 8.88	— 3 49	48.99

Anonymous.

May	2	10 29 42.99	— 3 28	12.33

Weisse X, 637.

May	2	10 35 27.06	— 3 37	21.09

Weisse X, 859.

		R.A. h. m. s.	Dec. ° ′ ″	
May	2	10 45 54.37	— 0 43	12.74

Lalande, 21026.

May	2	10 48 26.97	— 0 49	6.50

3768, Leonis.

March	7	10 52 48.85	+ 4 25	18.09

α Ursæ Majoris.

February	12	10 54 (25.32)	+62 33	
	15	25.66		
	23	25.70		
March	30	(25.27)		31.98
April	19	25.49		33.63
May	4	25.45		35.59
	19	(25.35)		37.37
June	5	25.67		
August	27	25.51		32.68
September	4	25.66		
	16	25.83		

α Ursæ Majoris, S. P.

September	27	10 54 25.55		
November	3	25.38		

χ Leonis.

March	7	10 57 16.52		

δ Leonis.

February	23	11 6 7.49	+21 20	
March	30	7.50		41.11
April	5	7.39		44.23
	19	7.47		41.02
May	2	7.54		
	4	7.24		44.12
	19	7.42		43.86
June	5	7.45		

δ Hydræ et Crateris.

February	15	11 11 50.66	—13 58	
	23	50.83		
March	9	50.62		
	30	50.60		4.71
April	19	50.61		3.76
May	19	50.63		2.66
June	5	50.53		

σ Leonis.

April	5	11 13 23.89	+ 6 51	4.91
May	2	24.15		5.53

τ Leonis.

April	5	11 20 12.97	+ 3 40	54.38

υ Leonis.

March	9	11 29 16.03	+ 0 0	16.30

β Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
February	15	11 41 24.25	+15 24
March	22	24.17	
April	5	24.21	42.71
	14	24.42	36.30
	19	24.29	37.19
May	4	24.16	38.51
	9	24.16	36.24
June	5	24.33	
August	27	24.39	
October	15	24.27	
	24	24.34	

β Virginis.

March	9	11 42 52.81	

γ Ursæ Majoris.

March	22	11 45 55.00	
April	19	54.85	
June	5	55.02	
August	27	54.84	
October	15	55.03	
	22	54.86	
	24	54.92	

η Virginis.

April	5	12 12 13.91	+ 0 10 3.75
May	2	13.96	1.67
	4	13.94	
	9	13.82	3.74

β Corvi.

February	15	12 26 30.86	—22 33
March	7	30.99	
May	9	30.85	57.65
	17	30.81	
	23	30.87	
	31	30.91	
June	5	30.85	
	11	30.86	
	18	30.87	

γ Virginis.

April	5	12 34 3.51	— 0 37 35.95
May	31	3.62	

12 Canum Venaticorum.

September	1	12 49 0.14	

α Virginis.

May	31	13 17 (17.39)	
July	18	17.64	
August	25	17.59	
September	5	17.71	
	15	17.64	

Anonymous.

May	2	13 41 32.17	+22 46 2.78

η Ursæ Majoris.

		R.A. h. m. s.	Dec. ° ′ ″
March	19	13 41 37.36	+50 3 50.58
April	11	37.43	
	19	37.47	
May	9	37.45	
	17	37.49	44.42
July	16	37.54	
	18	37.45	
	24	37.33	48.98
September	5	37.39	
	18	37.42	
	25	27.44	52.91
November	19	37.41	52.01

Anonymous.

May	2	13 43 16.08	+22 42 43.92

η Bootis.

March	7	13 47 32.50	+19 9 5.71
April	11	32.50	
May	9	32.49	
	17	32.45	6.77
June	30	32.57	
September	5	32.50	
November	13	32.54	
	19	32.51	(11.59)

Lalande, (25674)

April	19	13 50 20.77	+24 6 14.88

Anonymous.

May	2	13 53 31.16	+28 55 58.19

Anonymous.

May	2	13 56 24.48	+23 49 52.88

Anonymous.

May	2	13 59 3.68	+23 55 37.15

Anonymous.

April	19	13 59 22.53	+24 6 28.16

α Bootis.

March	7	14 8 49.17	+19 57
	19	49.26	59.84
April	11	(48.32)	
May	9	49.34	
	15	49.40	
	17	49.30	56.48
	23	49.14	57.37
	31	49.10	
June	11	49.16	
	18	49.22	
	30	49.26	
July	16	49.27	
	18	49.27	
September	5	49.29	
	14	49.20	
	15	49.30	
	18	49.23	
	24	49.20	

α Bootis—Continued.

		R.A. h. m. s.	Dec. ° ′ ″
September	25	14 8 49.18	+19 57 59.86
October	16	49.16	
	23	49.29	
November	1	48.98	
	2	49.08	
	5	49.30	
	12	49.39	
	13	49.49	
	14	49.24	

ε Bootis.

March	19	14 38 26.11	+27 42 35.19
May	9	26.05	35.85
	17	26.13	
June	11	26.18	
	18	26.14	32.55
	22	25.88	
	30	26.22	

α^2 Libræ.

May	9	14 42 35.27	+15 24 53.67
	17	35.20	
June	11	35.22	
	22	35.15	
	30	35.19	

β Ursæ Minoris.

May	9	14 51 11.54	+74 46 7.70
	15	12.31	2.49
	17	11.73	5.76
June	11	12.17	
July	24	12.71	
November	5	11.39	

δ Libræ.

June	30	14 52 57.54	

β Libræ.

May	9	15 8 56.46	— 8 49 29.57
	15	56.57	37.29
	17	56.46	33.71
June	11	56.37	
	30	56.23	

α Coronæ Borealis.

April	5	15 28 20.29	+27 13
	16	20.17	
May	9	20.21	25.94
	17	20.15	22.18
	31	20.08	
July	2	20.16	
	24	20.25	21.18

α Serpentis.

April	5	15 36 52.98	+ 6.54
May	15	52.95	1.68
	17	52.89	3.25
	23	52.97	4.95
	31	52.84	
July	2	52.88	
	24	52.85	3.64
October	23	52.65	

ζ Ursæ Minoris.

	R.A.	Dec.
	h. m. s.	° ′ ″
May 15	15 49 31.81	+78 15 9.48
23	30.89	8.40
31	31.34	
July 2	31.81	
24	31.31	12.93

β¹ Scorpii.

May 15	15 56 43.53	—19 23 26.18
July 17	43.15	

5333, Scorpii.

May 23	15 57 2.18	

γ Scorpii

July 2	16 3 16.81	

δ Ophiuchi.

May 15	16 6 29.41	+ 3 18 13.47
31	29.09	
July 2	29.31	
17	29.29	
24	29.31	15.33
August 27	29.10	13.66

ψ Ophiuchi.

July 2	16 15 19.69	

α Scorpii.

May 15	16 20 13.17	—26 5 37.49
23	(12.71)	
July 2	12.95	
24	13.07	39.31
August 27	12.85	39.03

5637, Ophiuchi.

May 23	16 41 32.29	—10 30 47.13

ε Ursæ Minoris.

July 30	17 1 30.82	+82.16
August 25	30.99	28.05
27	30.93	30.61
30	31.29	

η Ophiuchi.

July 2	17 1 46.55	

α Herculis.

July 2	17 7 48.54	+14 34
17	48.60	
August 27	48.46	3.36
30	48.49	

θ Ophiuchi.

ly 2	17 12 47.96	

α Ophiuchi.

	R.A.	Dec.
	h. m. s.	° ′ ″
January 22	17 27 58.37	+12 40
August 16	58.31	
27	58.29	21.49
30	58.21	24.24
September 7	58.43	
November 5	58.31	

5987, Ophiuchi.

August 27	17 34 26.51	—21 36 19.86

γ Draconis.

August 24	17 53 7.42	+51 30
27	7.42	28.72
30	7.61	33.04
September 7	(7.70)	
25	7.31	33.12

μ¹ Sagittarii.

June 18	18 4 47.48	—21 5
22	47.67	
August 16	47.53	
27	47.64	34.18
30	47.63	32.94
September 25	47.53	33.64

λ Sagittarii.

August 27	18 18 42.72	—25 29 59.86

δ Ursæ Minoris.

August 16	18 20 44.02	+86 35
21	45.17	
30	44.25	
September 25	42.99	51.08

δ Ursæ Minoris, S. P.

January 4	18 20 44.78	+86 35 50.00
18	42.66	
February 6	42.91	48.05
12	43.33	
March 7	44.67	
19	44.81	50.81

α Lyræ.

January 2	18 31 51.62	+38 38
August 27	51.47	
30	51.55	
September 7	51.28	48.22
10	51.58	47.84
25	51.56	
October 8	51.66	
27	51.53	54.42
November 15	51.55	
December 5	51.56	
7	51.35	
18	51.47	

β Lyræ.

August 21	18 44 32.60	+33 11
24	32.47	
27	32.64	32.02

β Lyræ—Continued.

	R.A.	Dec.
	h. m. s.	° ′ ″
September 5	18 44 32.43	
7	32.29	27.95
10	32.46	29.47
25	32.49	32.29

ε Sagittarii.

September 25	18 55 41.38	—21 57 21.70

ζ Aquilæ.

August 21	18 58 31.04	+13 38
September 5	30.97	43.00
October 27	30.87	43.34

π Sagittarii.

September 25	19 0 50.38	—21 15 23.87

δ Aquilæ.

August 21	19 17 55.83	+ 2 49
24	56.05	
25	56.07	12.32
27	55.90	
30	55.91	
September 5	56.07	15.12
10	55.98	10.03
12	56.07	8.73
25	56.12	
October 8	55.95	
22	56.33	
24	56.02	
27	55.89	13.94

6742, Sagittarii.

September 25	19 33 56.13	—16 28 15.49

γ Aquilæ.

August 21	19 39 7.57	+10 15
24	(7.42)	
25	7.51	5.92
27	7.70	5.10
September 5	7.64	7.48
12	7.56	4.03
28	(7.45)	
October 8	(7.44)	7.38
24	7.63	
27	7.62	7.53

α Aquilæ.

August 21	19 43 27.60	+ 8 28
24	27.89	
25	27.79	35.45
27		35.19
30	27.96	
September 5	27.76	
12	27.78	31.83
18	27.56	
25	27.75	34.53
28	27.83	
October 8	27.81	35.40
24	27.81	
27	27.81	35.96
November 2	27.79	
7	27.75	
December 5	27.82	
7	27.93	

β Aquilæ.

		R. A.	Dec.
		h. m. s.	° ′ ″
August	25 - -	19 47 56.61	+ 6 2
	27 - -	(56.81)	
	30 - -	(56.81)	
September	10 - -	56.64	9.07
	12 - -	56.62	8.08
	18 - -	56.56	
	27 - -	56.68	
	28 - -	56.49	9.55
October	8 - -	56.57	
	24 - -	56.67	
	27 - -	56.67	10.57
November	7 - -	56.64	

6840, Sagittarii.

September	25 - -	19 49 26.10	—15 53 3.81

α² Capricorni.

August	24 - -	20 9 43.71	—13 0
	25 - -	43.61	
	30 - -	43.58	
September	10 - -	43.61	
	12 - -	43.55	21.87
	18 - -	43.63	
	27 - -	43.49	
October	8 - -	43.54	
	24 - -	43.56	
	27 - -	43.53	18.29
November	7 - -	43.63	

β Capricorni.

August	30 - -	20 12 34.71	—15 15 3.62
September	27 - -	34.64	0.28

λ Ursæ Minoris.

August	21 - -	20 13 2.11	+88.51
	24 - -	1.78	
September	5 - -	3.83	37.09

λ Ursæ Minoris, S. P.

February	15 - -	20 13 2.27

π Capricorni.

October	24 - -	20 18 43.75

ρ Capricorni.

August	30 - -	20 20 17.85	—18 18 18.19

υ Capricorni.

September	27 - -	20 31 30.33	+18 39 33.73

α Cygni.

January	18 - -	20 36 (18.79)	+44 44
	23 - -	19.06	
September	12 - -	18.93	47.61
	18 - -	(19.52)	
	25 - -	19.08	50.75
	27 - -	18.98	

α Cygni—Continued.

		R. A.	Dec.
		h. m. s.	° ′ ″
October	8 - -	20 36 19.12	
	22 - -	19.20	
November	13 - -	19.05	47.17
December	18 - -	19.12	

ε Aquarii.

August	30 - -	20 39 33.16

μ Aquarii.

August	30 - -	20 44 33.46

61¹ Cygni.

September	7 - -	21 0 10.73	+38 0 57.39
	10 - -	10.55	53.49
	12 - -	(10.86)	
	18 - -	10.55	
	21 - -	10.53	54.96
	25 - -	10.49	57.35
	28 - -	10.44	
November	13 - -	10.46	

61² Cygni.

November	13 - -	21 0 11.64	+38 0 52.83

ζ Cygni.

September	7 - -	21 6 33.28	+29 36 (54.34)
	10 - -	33.14	51.58
	12 - -	33.26	50.60
	18 - -	33.13	50.18
	21 - -	33.28	52.67
	25 - -	33.18	
	28 - -	33.20	51.45
October	8 - -	33.14	
November	13 - -	33.14	

ι Capricorni.

October	24 - -	21 13 53.21

α Cephei.

September	7 - -	21 14 59.53	+61 57
	12 - -	59.67	2.80
	18 - -	59.81	5.84
	21 - -	59.68	6.22
	25 - -	59.47	7.59
	28 - -	(59.27)	8.00
October	8 - -	59.71	8.67
	27 - -	59.67	7.53
November	3 - -	59.56	
	12 - -	60.02	
	13 - -	59.47	
	19 - -	59.60	

β Aquarii.

September	5 - -	21 23 39.42	— 6 13 37.35
	12 - -	39.54	40.01
	21 - -	39.44	41.09
	25 - -	39.43	40.27
	27 - -	39.63	
	28 - -	39.40	38.54

β Aquarii—Continued.

		R. A.	Dec.
		h. m. s.	° ′ ″
October	8 - -	21 23 39.66	
	24 - -	(39.30)	
	30 - -	39.49	
November	3 - -	39.52	
	12 - -	39.47	
	23 - -	39.42	
	19 - -	39.41	

β Cephei.

September	7 - -	21 26 42.17	+69 54
October	8 - -	42.17	
	27 - -	42.34	
November	13 - -	42.12	
	19 - -	42.20	

γ Capricorni.

September	27 - -	21 31 46.37	—17 20 8.58
	28 - -	46.32	10.87

ε Pegasi.

September	5 - -	21 36 (48.94)	+ 9 11 27.15
	7 - -	49.21	
	10 - -	49.10	23.64
	12 - -	49.09	
	18 - -	49.01	26.20
	21 - -	48.97	25.73
October	8 - -	49.32	24.28
	24 - -	49.00	
	27 - -	49.12	27.28
	30 - -	49.14	
November	3 - -	49.14	27.86
	12 - -	49.09	
	13 - -	49.16	
	19 - -	49.10	
December	5 - -	49.04	

δ Capricorni.

September	27 - -	21 38 45.28	—16 48
	28 - -	45.27	19.23
October	26 - -	45.17	

Lalande, 42700.

November	13 - -	21 47 15.48	—21 50 37.95

Anonymous.

November	19 - -	21 48 12.68	—21 28 22.79

Rumker, XXI, 163.

November	13 - -	21 49 56.78	—21 26 46.82
	19 - -	56.65	53.59

Argelander's Zones, 246.

October	24 - -	21 52 9.74	—21 32
November	13 - -	9.89	1.50

Argelander's Zones, 237.

November	13 - -	21 55 48.02	—[illegible] [illegible] 12.44

α Aquarii.

		R. A.	Dec.
		h. m. s.	° ′ ″
September	5 - -	21 58 4.86	— 1 2 51.73
	7 - -	4.73	44.18
November	3 - -	4.66	46.25

α Gruis.

December	5 - -	21 58 44.96	—47 41
	7 - -	45.22	

ι Aquarii.

October	28 - -	21 58 19.82

Lalande, 43106.

November	13 - -	21 59 29.99 —22 19 17.73

θ Aquarii.

September	28 - -	22 8 54.79 — 8 31 39.67

σ Aquarii.

October	26 - -	22 22 42.27	—11 26
	27 - -	42.27	33.81

ζ Pegasi.

September	12 - -	22 33 58.66	+10 3
	24 - -	58.93	0.45
	28 - -	58.82	4.57

ζ Pegasi—Continued.

		R. A.	Dec.
		h. m. s.	° ′ ″
October	26 - -	58.96	
	27 - -	59.08	4.50
November	3 - -	58.85	4.21
	5 - -	58.76	2.89
	7 - -	58.85	
	12 - -	58.93	
	13 - -	58.97	
	19 - -	58.92	
December	11 - -	58.88	

λ Aquarii.

October	26 - -	22 44 46.73
	27 - -	47.12

α Piscis Australis.

September	12 - -	22 49 (21.29)	—30 24 57.84
	21 - -	21.05	54.21
	24 - -	20.94	58.12
	27 - -	21.03	
	28 - -	20.99	
October	24 - -	21.17	
	26 - -	21.02	
November	3 - -	20.96	55.13
	5 - -	21.03	56.40
	12 - -	20.84	
	19 - -	(21.17)	
December	5 - -	21.00	
	7 - -	(21.29)	
	11 - -	(21.17)	
	17 - -	21.00	

α Pegasi.

		R. A.	Dec.
		h. m. s.	° ′ ″
September	21 - -	22 57 17.53	+14 23 59.64
	24 - -	17.49	57.91
October	24 - -	17.50	
	26 - -	17.47	
November	5 - -	17.50	61.53
	12 - -	17.59	
	19 - -	17.49	
December	11 - -	17.38	
	17 - -	17.46	

ι Piscium.

September	24 - -	23 32 14.12 + 4 48 48.93
December	21 - -	14.09

γ Cephei.

October	26 - -	23 33 14.26
	27 - -	13.89
November	19 - -	13.80

γ Cephei, S. P.

May	2 - -	23 33 13.90 +76 47 43.97

20 Piscium.

October	27 - -	23 40 13.97

27 Piscium.

October	27 - -	23 50 59.55 — 4 23 12.61

Weisse XXIII, 1242.

		R.A.	Dec.
		h. m. s.	° ′ ″
October	29 - -	0 0 8.09	—11 57 50.40

α Andromedæ.

January	5 - -	0 0 38.49	+28 15
October	1 - -	38.50	
	9 - -	38.50	43.46
	28 - -	38.57	40.42

γ Pegasi.

January	5 - -	0 5 30.94	+14 20
October	1 - -	30.95	
	3 - -	30.99	58.31
	28 - -	30.96	
November	9 - -	30.93	
	14 - -	30.93	
December	11 - -	31.08	

α Cassiopeiæ.

November	13 - -	0 32 1.50	+55 42 51.11
	14 - -	1.49	
December	11 - -	1.26	49.01

20 Ceti.

December	13 - -	0 45 20.62	— 1 57 36.49

Polaris.

January	12 - -	1 4 60.77	+88 30
	19 - -	66.45	
	23 - -	62.66	
	29 - -	59.20	35.26
February	25 - -	58.12	
March	5 - -	59.55	
April	29 - -	64.71	
October	9 - -	63.77	34.05
	15 - -	66.15	36.15
	28 - -	61.10	32.39
November	4 - -	66.14	(30.63)
	6 - -	61.36	36.40
	14 - -	64.63	
December	11 - -	59.80	34.74

Polaris, S. P.

April	2 - -	1 4 61.31	+88.30
	15 - -	61.10	35.71
May	9 - -	60.76	39.82
	11 - -	59.91	34.09
	18 - -	62.16	(42.64)
June	3 - -	61.07	35.50
	4 - -	61.55	
	13 - -	63.09	
September	6 - -	59.92	35.62
	23 - -	57.92	
	25 - -	59.11	
	28 - -	60.05	38.52
October	1 - -	63.05	33.72
	3 - -	62.26	
	4 - -	61.10	
	10 - -	62.03	
	14 - -	61.64	35.95
	16 - -	62.67	34.01
	28 - -	63.29	38.74
November	10 - -	62.75	
	13 - -	65.72	38.45
	21 - -	59.81	

ν Piscium.

		R A.	Dec.
		h. m. s.	° ′ ″
December	13 - -	1 33 37.94	+ 4 43 38.61

α Arietis.

January	12 - -	1 58 43.53	+22 44 60.21
	19 - -	43.64	
	25 - -	43.58	
December	11 - -	- -	65.46
	13 - -	43.58	62.80

γ Ceti.

February	5 - -	2 35 31.90	+ 2 36
December	13 - -	31.90	7.39

α Ceti.

January	12 - -	2 54 26.54	+ 3 29 55.41
February	5 - -	26.38	

α Persei.

January	9 - -	3 13 38.21	+49 19
	12 - -	38.22	20.57
February	5 - -	38.36	

17 Tauri.

February	5 - -	3 35 58.57	+23 38
	8 - -	58.60	

23 Tauri.

February	8 -	3 37 25.97	+23 28

η Tauri.

January	9 - -	3 38 34.36	+23 28
	14 - -	34.35	
February	5 - -	34.48	
	8 - -	34.58	

γ^1 Eridani.

January	14 - -	3 51 1.81	—13 56
February	8 - -	1.83	
	16 - -	(1.58)	
December	13 - -	1.92	17.64

α Tauri.

January	5 - -	4 27 19.01	+16 12
	14 - -	19.19	
	46 - -	18.92	

Bessel's Zones, 396.

January	14 - -	5 3 4.87	

α Aurigæ.

February	16 - -	5 5 36.97	+45 50
	23 - -	37.07	21.26
May	13 - -	36.99	

β Orionis.

		R.A.	Dec.
		h. m. s.	° ′ ″
January	9 - -	5 7 19.86	— 8 22
February	22 - -	19.94	
April	29 - -	19.92	

β Tauri.

January	22 - -	5 16 48.77	+28 28
	23 - -	48.77	

δ Orionis.

January	14 - -	5 24 20.51	— 0 24
	22 - -	20.71	
February	14 - -	20.75	
	22 - -	20.82	
	23 - -	20.67	52.37

α Leporis.

February	22 - -	5 26 6.78	—17 56

ε Orionis

January	9 - -	5 28 36.19	— 1 18
	14 - -	36.25	
February	14 - -	36.10	
March	8 - -	36.21	
April	29 - -	36.30	

α Columbæ.

February	23 - -	5 34 12.87	—34 9
March	8 - -	13.00	28.65

α Orionis.

January	9 - -	5 47 3.11	+ 7 22
	19 - -	3.05	26.47
February	11 - -	3.13	27.47
	14 - -	3.27	
	25 - -	3.20	28.01
March	8 - -	3.09	24.86
May	13 - -	3.03	

μ Geminorum.

February	11 - -	6 13 53.09	+22 35 7.36
	22 - -	53.30	
	25 - -	- -	9.31

51 (Hev.) Cephei.

February	16 - -	6 28 35.42	+87.15

α Canis Majoris.

January	9 - -	6 38 32.54	—16 30
February	11 - -	32.39	49.68
	22 - -	32.26	
	23 - -	32.30	
	25 - -	32.27	44.90
March	8 - -	- -	55.97
	11 - -	32.30	

ε Canis Majoris.

		R.A.	Dec.
		h. m. s.	° ′ ″
January	9	6 52 43.90	−28 46
February	11	43.86	17.39
	16	43.75	
	22	43.69	
March	4	43.72	

δ Geminorum.

February	22	7 11 9.81	+22.15
	23	9.84	11.86
	25	9.72	

a^2 Geminorum.

March	4	7 25 1.24	+32 12
	11	1.26	
April	29	1.31	41.80

α Canis Majoris.

March	4	7 31 26.83	+ 5 36
	11	26.82	
April	29	26.92	22.96

κ Geminorum.

February	22	7 35 23.40	+24 45
	23	23.39	10.36

β Geminorum.

March	11	7 36 7.72	+28 22
April	29	7.85	58.71

15 Argus.

February	25	8 1 9.31	−23 52
March	4	9.32	

δ Cancri.

February	23	8 36 9.41	+18.42

ε Hydræ.

February	19	8 38 49.67	+ 6.57

α Cancri.

February	23	8 50 16.77	+12 26

α Hydræ.

February	19	9 20 12.97	− 8 0
March	11	12.89	39.61
April	2	12.88	

θ Ursæ Majoris.

April	2	9 22 47.60	+52 21

ε Leonis.

February	19	9 37 19.83	+24 27
March	11	19.59	45.19

α Leonis.

		R.A.	Dec.
		h. m. s.	° ′ ″
February	19	10 0 22.68	+12 41
March	11	22.77	55.65
April	29	22.54	53.24

δ Leonis.

May	6	11 6 7.41	

δ Hydræ et Crateris.

April	2	11 11 50.48	+21 20

β Leonis.

March	8	11 41 24.28	+15.24
April	2	24.19	
	15	24.28	
	17	24.21	
	29	24.22	41.92
May	1	24.18	36.04

γ^1 Ursæ Majoris.

April	2	11 45 54.96	+54.31
	15	54.81	
	17	55.04	

β Corvi.

April	2	12 26 30.96	−22 33
	15	31.08	59.29
	29	30.89	57.54
May	1	30.93	
	6	30.88	57.00
	9	30.82	
	11	30.88	

α Virginis.

April	29	13 17 17.64	−10 22
May	1	. .	32.84
September	22	17.66	

η Ursæ Majoris.

April	15	13 41 37.16	+50 3
	29	37.46	50.43
May	11	37.35	50.81
	18	37.44	
	20	37.40	48.70
June	4	37.40	
	5	37.55	
September	6	37.41	
November	21	37.44	

η Bootis.

April	15	13 47 32.66	+19 9
May	9	32.51	7.17
	11	32.57	4.25
	18	32.50	
	20	32.53	
June	5	32.54	6.12

θ Centauri.

June	4	13 57 52.74	−35 37
	5	52.78	49.85

α Bootis.

		R.A.	Dec.
		h. m. s.	° ′ ″
April	29	14 8 49.36	+19 57 58.07
May	9	49.35	59.42
	11	49.21	60.77
	18	49.45	56.87
	20	49.15	54.86
June	5	49.30	54.44
September	23	49.25	
	28	49.30	
October	3	49.19	
November	13	49.13	
	21	49.18	

4 Libræ

June	5	14 34 33.81	−24 21 20.88

ε Bootis.

May	20	14 38 26.18	+27 42 32.14

a^2 Libræ.

May	9	14 42 35.26	−15 24 51.71
	20	35.27	

12 Libræ.

June	3	14 45 38.08	−24 1 28.94
	5	37.92	30.60

59 Hydræ.

June	5	14 49 47.18	−27 3 8.97

β Ursæ Minoris.

May	9	14 51 11.91	+74 46
	18	12.12	

β Ursæ Minoris, S. P.

December	13	14 51 11.66	+74 46 7.14

1 Lupi.

June	3	15 5 26.75	−30 57 16.59

β Libræ

May	9	15 8 56.49	− 8 49 27.69
	18	56.35	29.62
June	3	56.36	35.76
	5	56.42	38.80
	10	66.42	

Argelander's Zones, 209, 54.

June	3	15 23	−21 26 58.79
	5		66.60

Lalande, 28414.

May	18	15 28 59.31	−22 38 22.69
	20	59.48	23.49

Lalande, 28446.

	R.A. h. m. s.	Dec. ° ′ ″
June 3	15 29	−22 33 11.81
5		13.81
24	52.89	13.48

Argelander, Zone 209, 63.

May 18	15 30 32.24	−22 39 18.76
20	32.34	15.86

α Serpentis.

June 10	15 36 52.91	+ 6 54

ζ Ursæ Minoris

May 20	15 49 31.51	+78 15 14.79
June 3	31.74	12.68
10	32.05	7.98

β^1 Scorpii.

April 29	15 56 43.20	−19 22 19.11

δ Ophiuchi.

April 29	16 6 29.03	− 3 18 10.84
May 20	29.28	13.61
June 3	29.36	11.30
24		12.84
September 6	29.39	

Argelander, Zone 210, 43.

May 9	16 6 43.08	−24 44 6.36

Fedorenko's Lalande, 2761.

June 10	16 15 45.53	+71 12 17.57

Fedorenko's Lalande, 2762.

June 10	16 15 55.90	+71 18 31.76

α Scorpii.

April 29	16 20	−26 5 39.93
May 9	12.96	
June 5	12.97	41.73
24		40.47
September 6	12.92	
October 15	12.83	38.56
16	13.20	39.21

5632.

June 24	16 40	−34 0 54.20

Groombridge, 2404.

June 5	16 56 36.54	−73 9 2.24

Ursæ Minoris, 5769.

June 5	16 59 17.68	+73 21 3.61

ε Ursæ Minoris.

	R.A. h. m. s.	Dec. ° ′ ″
June 24	17 1	+82 16 33.99

η Ophiuchi.

April 29	17 1 46.78	−15 31 58.75

Argelander, Zone 126, 47.

June 3	17 3 33.95	+73 24 11.68
5	35.96	10.04

Argelander, Zone 126, 48.

June 3	17 4 29.30	+73 31 1.84

α Herculis.

January 18	17 7 48.56	+14 33

ξ Ophiuchi.

April 29	17 12 1.06	−20 56 43.72

(5851.)

June 24	17 12	−24 50 36.38

5915.

June 24	17 23	−36 59 16.98
September 28		23.37

β Draconis.

August 7	17 27 2.71	+52 24

α Ophiuchi.

January 18	17 27 58.29	+12 40
June 5	58.41	

6066.

August 9	17 47	−23 54 46.99

6077.

April 29	17 50 37.95	−23 47
June 24		49.90

γ Draconis.

January 18	17 53 7.52	+51 30 29.27
June 3	7.45	
5	7.56	
October 1	7.47	29.14

μ^1 Sagittarii.

April 29	18 4 47.58	−21 5 28.80
June 5	47.35	
10	47.45	

μ^1 Sagittarii—Continued.

	R.A. h. m. s.	Dec. ° ′ ″
August 9	18 4	−21 5 38.39
16	47.55	
October 1	47.48	33.93
4	47.46	
8	47.54	

δ Ursæ Minoris.

June 10	18 20 44.02	+86 35 45.87
August 7	44.01	
9	42.82	
16	42.52	
September 23	43.21	52.97
25	45.17	
28	44.59	
October 1	43.35	50.82
4	42.67	48.09
8	43.32	49.78
November 14	41.04	

δ Ursæ Minoris, S. P.

February 16	18 20 42.58	+86 35
16	45.38	
March 8	34.44	52.63

α Lyræ.

January 4	18 31 51.59	+38 38
18	51.54	
21	51.52	
22	51.52	
June 3	51.48	
10	51.63	45.02
16	51.50	
September 25	51.57	
28	51.54	43.72
October 31	51.50	48.13
November 14	51.55	51.74
26	51.54	

β Lyræ.

June 10	18 44 32.43	+33 11
August 9		34.08
16	32.48	
26	32.41	
September 23	32.53	26.11
25	32.41	
October 1	32.55	27.63
4	32.42	28.94
8	32.58	

6521.

August 9	18 57	−27 52 68.11
September 23	34.16	63.26
25	34.00	
28	34.19	68.42
October 1	34.18	65.99
8	34.20	60.14

ζ Aquilæ.

August 26	18 58 30.92	+13 38
September 17	30.87	37.98

ε Canis Majoris.

		R.A.	Dec.
		h. m. s.	° ′ ″
January	9	6 52 43.90	−28 46
February	11	43.86	17.39
	16	43.75	
	22	43.69	
March	4	43.72	

δ Geminorum.

February	22	7 11 9.81	+22.15
	23	9.84	11.86
	25	9.72	

a^2 Geminorum.

March	4	7 25 1.24	+32 12
	11	1.26	
April	29	1.31	41.80

α Canis Majoris.

March	4	7 31 26.83	+ 5 36
	11	26.82	
April	29	26.92	22.96

κ Geminorum.

February	22	7 35 23.40	+24 45
	23	23.39	10.36

β Geminorum.

March	11	7 36 7.72	+28 22
April	29	7.85	58.71

15 Argus.

February	25	8 1 9.31	−23 52
March	4	9.32	

δ Cancri.

February	23	8 36 9.41	+18.42

ε Hydræ.

February	19	8 38 49.67	+ 6.57

α Cancri.

February	23	8 50 16.77	+12 26

α Hydræ.

February	19	9 20 12.97	− 8 0
March	11	12.89	39.61
April	2	12.88	

θ Ursæ Majoris.

April	2	9 22 47.60	+52 21

ε Leonis.

February	19	9 37 19.83	+24 27
March	11	19.59	45.19

α Leonis.

		R.A.	Dec.
		h. m. s.	° ′ ″
February	19	10 0 22.68	+12 41
March	11	22.77	55.65
April	29	22.54	53.24

δ Leonis.

May	6	11 6 7.41	

δ Hydræ et Crateris.

April	2	11 11 50.48	+21 20

β Leonis.

March	8	11 41 24.28	+15.24
April	2	24.19	
	15	24.28	
	17	24.21	
	29	24.22	41.92
May	1	24.18	36.04

γ^1 Ursæ Majoris.

April	2	11 45 54.96	+54.31
	15	54.81	
	17	55.04	

β Corvi.

April	2	12 26 30.96	−22 33
	15	31.08	59.29
	29	30.89	57.54
May	1	30.93	
	6	30.88	57.00
	9	30.82	
	11	30.88	

α Virginis.

April	29	13 17 17.64	−10 22
May	1	- -	32.84
September	22	17.66	

η Ursæ Majoris.

April	15	13 41 37.16	+50 3
	29	37.46	50.43
May	11	37.35	50.81
	18	37.44	
	20	37.40	48.70
June	4	37.40	
	5	37.55	
September	6	37.41	
November	21	37.44	

η Bootis.

April	15	13 47 32.66	+19 9
May	9	32.51	7.17
	11	32.57	4.25
	18	32.50	
	20	32.53	
June	5	32.54	6.12

θ Centauri.

June	4	13 57 52.74	−35 37
	5	52.78	49.85

α Bootis.

		R.A.	Dec.
		h. m. s.	° ′ ″
April	29	14 8 49.36	+19 57 58.
May	9	49.35	59.
	11	49.21	60.
	18	49.45	56.
	20	49.15	54.
June	5	49.30	54.
September	23	49.25	
	28	49.30	
October	3	49.19	
November	13	49.13	
	21	49.18	

4 Libræ

June	5	14 34 33.81	−24 21 20.

ε Bootis.

May	20	14 38 26.18	+27 42 32.

a^2 Libræ.

May	9	14 42 35.26	−15 24 51.7
	20	35.27	

12 Libræ.

June	3	14 45 38.08	−24 1 28.9
	5	37.92	30.6

59 Hydræ.

June	5	14 49 47.18	−27 3 8.9

β Ursæ Minoris.

May	9	14 51 11.91	+74 46
	18	12.12	

β Ursæ Minoris, S. P.

December	13	14 51 11.66	+74 46 7.1

1 Lupi.

June	3	15 5 26.75	−30 57 16.5

β Libræ

May	9	15 8 56.49	− 8 49 27.0
	18	56.35	29.6
June	3	56.36	35.7
	5	56.42	38.8
	10	66.42	

Argelander's Zones, 209, 54.

June	3	15 23	−21 26 58.7
	5		66.6

Lalande, 28414.

May	18	15 28 59.31	−22 38 22.6
	20	59.48	23.4

Lalande, 28446.

	R.A. h. m. s.	Dec. ° ′ ″
3	15 29	—22 33 11.81
5		13.81
24	52.89	13.48

Argelander, Zone 209, 63.

18	15 30 32.24	—22 39 18.76
20	32.34	15.86

α Serpentis.

10	15 36 52.91	+ 6 54

ζ Ursæ Minoris

20	15 49 31.51	+78 15 14.79
3	31.74	12.68
10	32.05	7.98

β¹ Scorpii.

l 29	15 56 43.20	—19 22 19.11

δ Ophiuchi.

l 29	16 6 29.03	— 3 18 10.84
20	29.28	13.61
ı 3	29.36	11.30
24		12.84
ember 6	29.39	

Argelander, Zone 210, 43.

9	16 6 43.08	—24 44 6.36

Fedorenko's Lalande, 2761.

ı 10	16 15 45.53	+71 12 17.57

Fedorenko's Lalande, 2762.

ı 10	16 15 55.90	+71 18 31.76

α Scorpii.

l 29	16 20	—26 5 39.93
9	12.96	
ı 5	12.97	41.73
24		40.47
ember 6	12.92	
ber 15	12.83	38.56
16	13.20	39.21

5632.

ı 24	16 40	—34 0 54.20

Groombridge, 2404.

ı 5	16 56 36.54	—73 9 2.24

Ursæ Minoris, 5769.

ı 5	16 59 17.68	+73 21 3.61

ε Ursæ Minoris.

	R.A. h. m. s.	Dec. ° ′ ″
June 24	17 1	+82 16 33.99

η Ophiuchi.

April 29	17 1 46.78	—15 31 58.75

Argelander, Zone 126, 47.

June 3	17 3 33.95	+73 24 11.68
5	35.96	10.04

Argelander, Zone 126, 48.

June 3	17 4 29.30	+73 31 1.84

α Herculis.

January 18	17 7 48.56	+14 33

ξ Ophiuchi.

April 29	17 12 1.06	—20 56 43.72

(5851.)

June 24	17 12	—24 50 36.38

5915.

June 24	17 23	—36 59 16.98
September 28		23.37

β Draconis.

August 7	17 27 2.71	+52 24

α Ophiuchi.

January 18	17 27 58.29	+12 40
June 5	58.41	

6066.

August 9	17 47	—23 54 46.99

6077.

April 29	17 50 37.95	—23 47
June 24		49.90

γ Draconis.

January 18	17 53 7.52	+51 30 29.27
June 3	7.45	
5	7.56	
October 1	7.47	29.14

μ¹ Sagittarii.

April 29	18 4 47.58	—21 5 28.80
June 5	47.35	
10	47.45	

μ¹ Sagittarii—Continued.

	R.A. h. m. s.	Dec. ° ′ ″
August 9	18 4	—21 5 38.39
16	47.55	
October 1	47.48	33.93
4	47.46	
8	47.54	

δ Ursæ Minoris.

June 10	18 20 44.02	+86 35 45.87
August 7	44.01	
9	42.82	
16	42.52	
September 23	43.21	52.97
25	45.17	
28	44.59	
October 1	43.35	50.82
4	42.67	48.09
8	43.32	49.78
November 14	41.04	

δ Ursæ Minoris, S. P.

February 16	18 20 42.58	+86 35
16	45.38	
March 8	34.44	52.63

α Lyræ.

January 4	18 31 51.59	+38 38
18	51.54	
21	51.52	
22	51.52	
June 3	51.48	
10	51.63	45.02
16	51.50	
September 25	51.57	
28	51.54	43.72
October 31	51.50	48.13
November 14	51.55	51.74
26	51.54	

β Lyræ.

June 10	18 44 32.43	+33 11
August 9		34.08
16	32.48	
26	32.41	
September 23	32.53	26.11
25	32.41	
October 1	32.55	27.63
4	32.42	28.94
8	32.58	

6521.

August 9	18 57	—27 52 68.11
September 23	34.16	63.26
25	34.00	
28	34.19	68.42
October 1	34.18	65.99
8	34.20	60.14

ζ Aquilæ.

August 26	18 58 30.93	+13 38
September 17	30.87	37.98

δ Aquilæ.

	R.A.	Dec.
	h. m. s.	° ′ ″
August 7	19 17 55.93	+ 2 49
26	56.16	
September 17	56.00	12.53
21	56.07	8.69
28	55.96	9.24
October 1	55.94	9.50
8	55.95	
15	55.91	10.90

6726.

October 1	19 30 48.26	—23 45
4		49.68
8	48.26	49.33

6727.

September 23	19 31	—23 45 61.06
October 1	5.67	62.59
4	5.40	61.95
8	5.87	60.78

γ Aquilæ.

August 7	19 39 7.68	+10 14
September 16	7.64	
17	7.58	65.50
21	7.67	59.61
23	7.65	
28	7.67	65.23
October 3	7.70	
15	7.65	67.21

α Aquilæ.

January 21	19 43 27.66	+ 8 28
28	27.81	
August 7	27.78	
9	27.76	
26	27.83	
September 16	27.81	
17	27.78	33.76
21	27.75	28.77
23	27.85	
28	27.76	32.32
October 1	27.85	
3	27.82	
8	27.85	
15	27.65	32.28
November 2	27.76	

β Aquilæ.

August 7	19 47 56.63	+ 6 2
September 21	56.64	
23	56.69	
28	56.65	8.53
October 1	56.59	10.91
3	56.54	
8	56.60	
15	56.67	9.40

α¹ Capricorni.

September 21	20 9 19.73	—12 58
October 1	19.78	
November 6	19.74	11.03

α² Capricorni.

	R.A.	Dec.
	h. m. s.	° ′ ″
August 9	20 9	—13 0 21.15
September 17	43.55	20.34
21	43.57	25.57
28	43.60	18.31
October 1	43.61	
3	43.70	18.31
8	43.66	
15	43.50	19.17
November 6	43.64	19.60

α Cygni.

January 22	20 36 19.17	+44 44
28	19.03	
August 9	19.10	59.19
September 21	19.24	41.67
November 2	19.09	51.83
6	19.09	45.31

η Capricorni.

September 16	20 55 51.55	—20 26
17	51.67	

61¹ Cygni.

October 29	21 0	+38 0 52.39
November 2	10.60	
6	10.52	48.65

61² Cygni.

November 2	21 0 12.03	+38 0
6	12.12	46.06

γ Aquarii.

September 17	21 1 25.12	—11 58 29.35
October 15	24.99	38.28

ζ Cygni.

September 21	21 6 33.26	+29 36 46.27
November 2	33.31	53.23
6	33.24	50.58

ι Capricorni.

October 15	21 13 53.19	—17 28

α Cephei.

September 21	21 14 59.81	+61 57
October 29		3.19
November 6	59.59	5.04

7458.

September 23	21 20	—31 53 17.06

β Aquarii.

October 29	21 23 39.53	— 6 13 42.22

β Cephei.

	R.A.	Dec.
	h. m. s.	° ′ ″
September 21	21 26 42.40	—69 54
October 9	42.28	

ε Pegasi.

September 23	21 36 48.98	+ 9 11 24.04
October 1	49.04	21.04
15	48.95	22.04
29	49.08	21.65
November 2	48.96	25.92

δ Capricorni.

September 17	21 38 45.29	—16 48 15.68

ι Aquarii.

October 15	21 58	—14 35 43.27

α Gruis.

September 21	21 58 45.01	—47 41
October 1		14.81
3	45.10	
9	44.96	
29	45.27	5.14
November 13	45.24	

7714.

September 23	22 1 20.46	—33 16 59.04

7750.

September 23	22 5 47.80	—28 30 28.12

θ Aquarii.

October 15	22 8 54.89	— 8 31 34.46

7861, B. A. C.

September 21	22 26 12.37	—10 22 49.17

ζ Pegasi.

October 9	22 33 58.69	+10 2 59.41
31	58.84	60.02

α Piscis Australis.

September 21	22 49 20.98	—30 24
23		54.03
October 1	20.85	60.90
3	21.07	57.58
9	20.97	56.49
15	20.96	56.75
28	21.00	56.25
31	21.09	59.20
November 4	20.97	53.30
6	21.02	56.65
9	20.92	57.22
13	21.21	
14		54.53

α Pegasi.

		R. A.	Dec.
		h. m. s.	° ′ ″
October	1	22 57 17.47	+14 23 56.33
	3	17.51	58.44
	9	17.56	60.28
	28	17.40	59.35
	31	17.47	56.60
Novemder	4	17.53	57.44
	6	17.67	59.03
	9	17.51	
	13	17.51	
	14	17.51	58.92

φ Aquarii.

November	13	23 6 33.29	— 6 51
	14	33.10	24.32
December	11	32.93	19.38

ψ² Aquarii.

		R. A.	Dec.
		h. m. s.	° ′ ″
November	13	23 11 9.37	—10 25 44.48
	14	9.32	44.35
December	11	9.33	46.13

ι Piscium.

October	29	23 32 14.21	+ 4 48 50.33
November	9	14.22	

γ Cephei.

October	3	23 33 14.26	+76 47 40.50

27 Piscium.

		R. A.	Dec.
		h. m. s.	° ′ ″
December	11	23 50 59.55	— 4 23 17.88

33 Piscium.

December	11	23 57 39.26	— 6 32 49.42

Weisse XXIII, 1210.

October	31	23 58 38.99	—12 51 27.28

Anonymous.

October	31	23 59 42.60	—12 52 6.23

		R. A.	N. Dec.
		h. m.	° ′ ″
	θ Andromedæ.		
December	11	0 7	37 50 54.53
	12		52.47
	Lalande, 2603.		
January	4	1 18	38 52 34.17
	Anonymous.		
January	4	1 18	38 53 52.10
	Anonymous.		
January	4	1 18	38 52 42.86
	Anonymous.		
January	4	1 18	38 53 2.13
	Lalande, 4387.		
January	5	2 15	38 39 42.22
	Lalande, 4667.		
January	5	2 23	36 40 11.78
	Lalande, 4784.		
January	5	2 28	38 5 0.59
	Anonymous.		
January	5	2.34	37 37 33.21
	Lalande, 5115.		
January	4	2 35	38 52 21.36
	Anonymous.		
January	4	2 48	38 26 39.78
	Lalande, 5682.		
January	11	2 57	38 1 0.62
	Lalande, 5834.		
January	11	3 2	37 29 47.74
	Lalande, 7391.		
January	10	3 52	38 40 25.68
	Lalande, 10650.		
February	10	5 32	38 6 53.60
	Anonymous.		
February	9	5 33	38 16 33.81
	θ Aurigæ.		
February	23	5 50	37 11 47.20
	Aurigæ, 1935.		
February	9	5 55	37 57 52.13
	Lalande, 11529.		
February	10	5 58	37 59 40.19
	Lalande, 12134.		
February	15	6 15	37 23 15.62
	Anonymous.		
February	23	6 25	37 49 37.97
	Anonymous.		
February	23	6 25	37 49 43.50
	Lalande, 13873.		
February	15	7 3	36 22 10.48
	Lalande, 14120.		
March	7	7 10	36 56 34.54
	Lalande, 14218.		
February	19	7 12	37 2 15.25
	Lalande, 14465.		
March	8	7 18	35 6 18.94
	Lalande, 14484.		
March	7	7 20	38 28 32.25
	Lalande, 14499.		
March	7	7 21	37 4 59.15
	a^1 Geminorum.		
March	8	7 24	32 12 43.79
	a^2 Geminorum.		
February	19	7 25	32 12 44.70
March	8	7 24	32 12 46.24
	Geminorum.		
March	8	7 28	34 55 24.65
	Lalande, 14806.		
February	19	7 29	35 22 45.19
	Lalande, 15882.		
March	8	7 59	35 53 58.55
	Anonymous.		
Febauary	19	8 22	37 45 53.25
	Anonymous.		
February	19	8 37	37 35 9.28
	Lalande, 21563.		
April	5	11 10	36 18 32.06
	Ursæ Majoris, 3965.		
April	10	11 32	35 2 56.67
	Lalande, 22565.		
April	10	11 51	37 47 47.72
	α Bootis.		
April	10	14 8	19 57 55.82
September	19		57.66
	25		59.90
	27		58.44
	28		59.42
	Anonymous.		
April	10	14 8	35 16 54.00
	Lalande, 27390?		
May	15	14 52	35 42 6.03
	Lalande, 27803.		
April	10	15 7	35 26 41.15
	α Coronæ Borealis.		
April	10	15 27	27 13 20.44
	κ Coronæ Borealis.		
May	15	15 44	36 7 33.54
	Anonymous.		
April	10	16 28	35 48 53.27
	ζ Herculis.		
May	15	16 34	31 52 39.74
	α Lyræ.		
April	10	18 31	38 38 50.46
May	15		50.86
September	18		49.61
	19		50.53
	21		51.55
	24		51.04
	25		50.86
December	11		50.05
	12		48.72

	R. A.	N. Dec.
	h. m.	° ′ ″
Lalande, 5300.		
January 9 . . .	2 43	37 47 57.97
Anonymous.		
February 22 . . .		38 55 9.18
Anonymous.		
February 22 . . .		38 55 48.42
Anonymous.		
February 25 . . .		38 53 29.58
β Tauri.		
September 17 . . .	5 16	28 28 30.01
Lalande, 10650.		
February 26 . . .	5 31	38 6 54.24
Lalande, 10666.		
February 26 . . .	5 32	38 7 2.75
Aurigæ, 2139.		
March 5 . . .	5 56	38 33 38.28
7 . . .		37.89
Lalande, 11959.		
March 8 . . .	6 9	38 29 21.97
Aurigæ, 2239.		
March 11 . . .	6 44	38 28 9.18
α Bootis.		
September 21 . . .	14 8	19 57 57.94
α Lyræ.		
June 10 . . .	18 31	38 38 49.64
September 17 . .		50.09
21 . . .		50.21
November 25 . . .		49.23
December 12 . . .		49.88
13 . . .		51.97
18 . . .		50.77
20 . . .		51.93

RIGHT ASCENSIONS AND DECLINATIONS

OF THE

SUN, MOON, AND PLANETS,

AS OBSERVED AT

THE NATIONAL OBSERVATORY

IN THE YEARS

1849 AND 1850.

SUN.

MEAN TIME—WASHINGTON.			Limb observed.	RIGHT ASCENSIONS.				SIDEREAL TIME OF SEMI-DIAMETER PASSING.			
1849.		Equation of time.		Observed.	Computed.	C — O.		Observed.	Computed.	C — O.	
		m. s.		h. m. s.	s.		s.	s.	s.		s.
January	12	+ 8 47.05	I.	19 37 6.42	6.24	—	0.18				
			II.	6.26	6.24	—	0.02	70.17	70.25	+	0.08
March	19	7 50.40	I.	23 56 21.94	21.98	+	0.04				
			II.	21.92	21.98		0.06	64.44	64.45		0.01
	23	+ 6 37.70	I.	0 10 55.26	55.29		0.03				
			II.	55.12	55.29		0.17	64.32	64.39	+	0.07
May	16	— 3 54.22	I.	3 33 15.18	15.51		0.33				
			II.	15.11	15.51	+	0.40	67.18	67.22	+	0.04
June	5	1 50.45	I.	4 54 11.29	10.75	—	0.54				
			II.	11.39	10.75		0.64	68.60	68.55	—	0.05
	22	— 1 38.05	I.	6 4 41.46	41.28		0.18				
			II.	41.44	41.28	—	0.16	68.88	68.89	+	0.01
July	13	+ 5 23.08	I.	7 31 14.47	14.61	+	0.14				
			II.	14.56	14.61		0.05	68.12	68.08	—	0.04
August	27	— 1 16.75	I.	10 24 32.54	32.57		0.03				
			II.	32.47	32.57		0.10	64.56	64.59	+	0.03
September	7	2 11.51	I.	11 4 25.46	25.82		0.36				
			II.	25.36	25.82		0.46	64.07	64.13		0.06
	11	3 33.72	I.	11 18 49.37	49.60		0.23				
			II.	49.35	49.60		0.25	64.03	64.04	+	0.01
	15	4 57.39	I.	11 33 11.60	11.91		0.31				
			II.	11.76	11.91	+	0.15	64.06	63.99	—	0.07
	25	8 25.83	I.	12 9 8.48	8.41	—	0.07				
			II.	8.39	8.41	+	0.02	64.06	64.11	+	0.05
	27	9 6.29	I.	12 16 21.15	20.94	—	0.21				
			II.	21.11	20.94	—	0.17	64.15	64.17	+	0.02
	28	— 9 26.22	I.	12 19 57.10	57.51	+	0.41				
			II.	57.16	57.51	+	0.35	64.23	64.20	—	0.03
1850.											
September	24	— 8 1.67	II.	12 4 38.51	38.65	—	0.14				
	28	9 22.76	I & II.	12 19 3.66	3.34		0.32	64.24	64.05	—	0.19
October	3	10 57.12	II.	12 37 11.35	10.62	—	0.73				
	22	15 26.18	I & II.	13 47 36.26	36.82	+	0.56	65.93	65.83		0.10
	29	16 8.97	I & II.	14 14 29.22	29.12	—	0.10	66.56	66.56		0.00
November	1	16 16.06	I & II.	14 26 11.78	11.73		0.05	66.97	66.90		0.07
	2	16 16.68	II.	14 30 7.71	7.60	—	0.11				
	4	16 16.00	I & II.	14 38 1.50	1.57	+	0.07	67.30	67.24		0.06
	11	15 47.10	II.	15 6 6.36	6.43	+	0.07				
	13	15 30.58	I & II.	15 14 16.03	16.02	—	0.01	68.25	68.31		
	14	15 21.49	I & II.	15 18 21.47	21.71	+	0.24	68.52	68.43		0.09
	31	13 54.49	I.	15 47 24.84	25.18		0.34				
	22	13 38.97	I & II.	15 51 36.95	37.56	+	0.61	69.66	69.36	—	0.30
	25	— 12 46.23	I & II.	16 4 19.60	19.38	—	0.22	69.41	69.67	+	0.26

MOON.

MEAN TIME—WASHINGTON.			Limb observed.	RIGHT ASCENSIONS. Observed.	Computed.	C — O.	SIDEREAL TIME OF SEMI-DIAMETER PASSING. Observed.	Computed.	C — O.
1849.		h. m. s.		h. m. s.	s.	s.	s.	s.	s.
January	4	8 20 34.73	I.	3 18 42.26	43.30	+ 1.04			
February	3	9 5 23.16	I.	6 1 54.72	55.40	0.68			
	6	11 58 23.30	I.	9 7 12.86	14.02	1.16	68.75	68.66	— 0.09
	6	11 58 23.30	II.	9 7 13.04	14.02	0.98			
	7	12 51 28.85	II.	10 4 23.78	25.15	1.37			
March	7	11 31 47.07	I.	10 34 52.38	53.45	1.07			
	8	12 20 16.40	I.	11 27 26.17	26.98	0.81	64.31	64.26	— 0.05
	8	12 20 16.40	II.	11 27 26.28	26.98	0.70			
April	5	11 1 29.86	I.	11 58 50.21	50.55	0.34			
	6	11 46 56.08	I.	12 48 20.51	21.00	0.49	62.61	62.68	+ 0.07
	6	11 46 56.08	II.	12 48 20.37	21.00	0.63			
	10	14 47 33.96	II.	16 5 14.20	14.67	0.47			
	30	7 24 47.67	I.	10 0 6.24	6.95	0.71			
May	2	8 59 38.46	I.	11 43 5.72	6.59	0.87			
	31	8 28 17.81	I.	13 6 0.02	0.61	0.59			
June	4	11 26 56.71	I.	16 20 54.50	55.15	0.65			
July	2	10 10 51.70	I.	16 55 0.58	1.14	0.56			
August	27	7 35 24.44	I.	17 59 54.86	55.14	0.28			
September	25	7 3 36.13	I.	19 22 21.35	21.58	0.23			
	27	8 39 31.03	I.	21 6 25.10	25.31	0.21			
	28	9 27 27.13	I.	21 58 25.63	26.01	0.38			
October	26	8 5 15.21	I.	22 26 23.68	24.23	+ 0.55			
1850.									
February	23	10 3 41.81	I.	8 18 16.35	17.19	+ 0.84			
	25	11 59 50.01	I.	10 22 36.79	37.97	1.18			
March	23	8 50 48.82	I.	8 55 34.91	36.26	1.35			
April	29	15 6 6.10	II.	17 37 44.93	45.29	0.36			
May	20	8 12 14.07	I.	12 5 43.78	44.49	+ 0.71			
	21	8 59 14.66	I.	12 57 38.79	37.64	— 1.15			
	27	13 48 5.00	II.	18 9 55.92	56.51	+ 0.59			
June	19	8 32 40.63	I.	14 24 20.54	21.21	0.67			
	24	12 33 3.21	II.	18 44 5.40	7.64	2.24			
July	19	8 52 20.25	I.	16 42 20.10	20.84	0.74			
	23	12 4 42.81	I & II.	20 10 55.47	56.12	0.65	64.44		
	24	12 52 15.77	II.	21 1 37.81	39.34	1.53			
September	16	8 44 30.90	I.	20 27 5.89	6.30	0.41			
	17	9 30 50.40	I.	21 17 29.39	29.78	0.39			
October	8	2 31 38.62	I.	15 39 56.76	59.18	2.42			
November	13	7 33 35.49	I.	23 4 39.16	39.71	0.55			
	14	8 17 18.49	I.	23 52 25.12	25.79	0.67			
December	13	7 37 52.10	I.	1 7 12.21	13.18	+ 0.97			

MERCURY.

MEAN TIME—WASHINGTON.			Limb observed.	RIGHT ASCENSIONS. Observed.	Computed.	C — O.
1849.		h. m. s.		h. m. s.	s.	s.
April	10	22 47 48.91	II.	0 6 48.05	47.59	— 0.46
	11	22 49 49.71	II.	0 12 45.73	45.86	+ 0.13
August	27	12 42 2.91	I.	11 5 25.43	25.71	0.28
September	11	1 9 55.15	I.	12 32 30.54	30.73	+ 0.19
1850.						
May	1	0 55 38.74	I.	3 32 52.33	52.75	+ 0.42
September	24	1 9 28.81	I.	13 22 21.74	21.60	— 0.14
November	8	23 2 31.05	II.	14 16 24.56	24.42	— 0.14
	10	23 6 51.49	II.	14 28 38.82	39.46	+ 0.64
	12	23 11 20.14	II.	14 41 1.32	1.31	— 0.01
	13	23 13 36.22	Centre.	14 47 14.32	14.60	+ 0.28

VENUS.

1849.						
April	2	2 37 25.86	I.	3 21 33.74	34.69	+ 0.95
	11	2 19 16.73	I.	3 38 50.60	52.04	1.44
	12	1 16 51.50	I.	2 40 11.67	13.09	1.42
May	18	23 9 46.68	II.	2 58 38.48	40.55	+ 2.07
October	24	21 52 45.13	II.	12 8 16.43	16.32	— 0.11
1850.						
April	29	0 55 48.12	I.	3 25 8.63	8.06	— 0.57
May	1	0 57 53.22	I.	3 35 7.87	8.43	+ 0.56
June	7	1 46 30.93	I.	6 49 45.46	45.59	+ 0.13
July	5	2 18 32.61	I.	9 12 15.51	15.02	— 0.49
	11	2 23 11.73	I.	9 40 35.22	35.49	+ 0.23
September	24	2 45 18.18	I.	14 57 27.01	27.06	+ 0.05
October	1	2 44 53.79	I.	15 26 38.26	37.96	— 0.30
	3	2 46 20.09	I.	15 34 57.90	56.82	1.08
	5	2 46 43.88	I.	15 43 14.86	14.28	0.58
	7	2 47 6.57	I.	15 51 30.72	29.69	1.03
	8	2 47 16.34	I.	15 55 37.06	36.43	0.63
	9	2 47 25.78	I.	15 59 43.07	42.41	0.66
	10	2 47 34.26	I.	16 3 48.13	47.53	0.60
	22	2 49 25.96	I.	16 50 58.75	57.99	0.76
	28	2 45 19.03	I.	17 12 30.49	29.06	1.43
	29	2 44 45.71	I.	17 15 53.62	52.53	1.09
November	1	2 42 42.97	I.	17 25 40.22	39.03	1.19
	2	2 41 53.31	I.	17 28 46.98	45.83	1.15
	4	2 39 59.73	I.	17 34 46.19	44.94	1.25
	9	2 33 39.52	I.	17 48 7.71	6.35	1.36
	13	2 26 38.38	I.	17 56 51.64	49.99	1.65
	14	2 24 34.22	I.	17 58 43.70	42.12	1.58
	26	1 47 57.66	I.	18 9 19.79	17.51	— 2.28

MARS.

Mean time—Washington.			Limb observed.	Right ascensions. Observed.	Right ascensions. Computed.	Right ascensions. C — O.	Sidereal time of semi-diameter passing. Observed.	Sidereal time of semi-diameter passing. Computed.	Sidereal time of semi-diameter passing. C — O.
1850.		h. m. s.		h. m. s.	s.	s.	s.	s.	s.
January	12	9 40 35.90	I & II.	5 9 31.42	30.12	— 1.30	0.53	0.48	— 0.05
	14	9 31 33.68	I & II.	5 8 20.82	19.60	1.22	0.64	0.48	0 16
	30	8 27 43.69	I & II.	5 7 25.24	24.03	1.21	0.48	0.41	0.07
February	11	7 48 26.74	I & II.	5 15 20.49	19.31	1.18	0.43	0.36	— 0.07
	16	7 33 51.21	I & II.	5 20 25.33	24.50	0.83	0.30	0.34	+ 0.04
	26	7 7 15.04	I.	5 33 10.32	9.47	— 0.85			

JUPITER.

1849.									
April	5	8 5 14.38	I & II.	9 1 5.77	5.29	— 0.48	1.38	1.45	+ 0.07
	6	8 0 17.15	I & II.	9 1 4.28	3.76	0.52	1.44	1.45	0.01
	12	7 36 48.49	I & II.	9 1 11.07	10.39	0.68	1.39	1.42	0.03
	16	7 21 24.12	I & II.	9 1 30.38	29.69	— 0.69	1.40	1.41	+ 0.01
1850.									
February	19	13 27 11.11	I & II.	11 26 32.93	32.06	— 0.87	1.48	1.49	+ 0.01
	22	13 14 5.04	I & II	11 25 14.37	13.69	0.68	1.45	1.50	+ 0.05
	25	13 0 56.71	I & II	11 23 53.54	52.74	0.80	1.54	1.50	— 0.04
	26	12 56 33.38	I & II.	11 23 26.04	25.26	0.78	1.53	1.50	— 0.03
March	7	12 16 56.22	I & II.	11 19 11.35	10.50	0.85	1.40	1.51	+ 0.11
	11	11 59 17.86	I & II.	11 17 16.29	15.40	0.89	1.52	1.51	— 0.01
	23	11 6 32.72	I & II.	11 11 41.12	40.04	1.08	1.50	1.50	0.00
April	4	10 14 27.51	I & II.	11 6 45.97	45.15	0.82	1.41	1.48	+ 0.07
	16	9 23 29.81	I.	11 2 58.53	57.66	0.87			
	17	9 19 18.67	I & II.	11 2 43.25	42.43	0.82	1.47	1.44	— 0.03
	18	9 15 8.35	I.	11 2 28.75	27.82	0.93			
	29	8 29 54.89	I & II.	11 0 29.99	29.17	0.82	1.40	1.39	— 0.01
May	1	8 21 50.00	I & II.	11 0 16.89	16.13	0.76	1.35	1.38	+ 0.03
	2	8 17 48.88	I.	11 0 11.66	10.61	— 1.05			

SATURN.

1850.									
November	14	9 24 24.28	I.	0 59 42.73	41.31	— 1.42			
December	13	7 26 51.70	I & II.	0 56 10.98	9.91	1.07	0.56	0.61	+ 0.05
	18	7 7 8.44	I.	0 56 7.26	6.03	— 1.23			

URANUS.

1850.									
November	14	10 7 1.26		1 42 26.71	37.46	+ 10.75			
December	26	7 18 9.96		1 38 43.05	53.50	+ 10.45			

NEPTUNE.

MEAN TIME—WASHINGTON.		Limb observed.	RIGHT ASCENSIONS. Observed.	Computed.	C — O
1849.	h. m. s.		° ′ ″	″	″
September 7	11 12 42.10		22 21 10.30	10.43	+ 0.13
10	11 0 36.42		22 20 52.29	52.32	0.03
11	10 56 34.57		22 20 46.33	46.40	0.07
13	10 48 31.01		22 20 34.55	34.71	0.16
15	10 40 27.51		22 20 22.83	23.21	0.38
18	10 28 22.87		22 20 5.86	5.94	0.08
21	10 16 18.61		22 19 49.27	49.32	0.05
25	10 0 13.[illegible]3		22 19 28.06	28.10	0.04
28	9 48 10.92		22 19 12.82	12.89	0.07
October 8	9 8 6.41		22 18 27.25	27.28	+ 0.03
9	9 4 6.52		22 18 23.26	23.13	— 0.13
24	8 4 18.99		22 17 34.20	34.16	— 0.04
November 3	7 24 41.56		22 17 15.79	15.80	+ 0.01
1850.					
September 21	10 25 59.49		22 28 34.18	34.37	+ 0.19
23	10 17 57.16		22 28 23.64	23.39	— 0.25
October 1	9 45 48.10		22 27 41.71	41.85	+ 0.14
3	9 38 45.98		22 27 31.38	32.17	0.80
7	9 21 44.68		22 27 13.66	13.79	0.13
9	9 13 44.33		22 27 5.08	5.11	+ 0.03
22	8 21 50.73		22 26 18.15	18.13	— 0.02
31	7 46 5.71		22 25 56.24	56.26	+ 0.02
November 1	7 42 7.93		22 25 54.37	54.40	0.03
2	7 38 10.33		22 25 52.67	52.69	0.02
4	7 30 15.44		22 25 49.58	49.61	0.03
5	7 26 18.19		22 25 48.24	48.25	0.01
9	7 10 30.32		22 25 43.99	44.10	0.11
13	6 54 44.63		22 25 41.93	42.05	0.12
21	6 23 19.27		22 25 43.86	43.93	+ 0.07

METIS.

1849.					
September 11	10 37 11.53		22 1 20.11	19.99	— 0.12
13	10 27 44.95		21 59 45.08	44.93	0.15
15	10 18 23.53		21 58 15.23	14.96	0.27
18	10 4 31.81		21 56 10.88	10.67	0.21
21	9 50 53.85		21 54 20.34	20.23	0.11
25	9 33 6.70		21 52 16.48	16.36	0.12
28	9 20 4.84		21 51 2.13	1.88	— 0.25

CERES.

1850.					
November 1	9 21 14.78		0 5 17.50	29.69	+ 12.19

VESTA.

1850.					
February 26	8 26 50.41		6 52 58.76	60.54	+ 1.78
March 11	7 38 11.65		6 55 27.19	28.85	+ 1.66

HEBE.

MEAN TIME—WASHINGTON.		Limb observed.	RIGHT ASCENSIONS. Observed.	Computed.	C — O.
1850.	h. m. s.		° ′ ″	″	″
il 6	12 0 0.10		13 0 29.01	27.86	— 1.15

IRIS.

1850.					
r 9	12 28 59.90		15 39 39.84	39.75	— 0.09
20	11 34 45.20		15 28 38.34	38.50	+ 0.16
r 1	8 21 28.10		15 0 24.88		

FLORA.

1850.					
ober 1	11 33 40.21		0 15 51.54	54.29	+ 2.75
3	11 24 5.30		0 14 8.17	11.51	3.34
7	11 5 4.50		0 10 50.45	53.36	+ 2.91
31	9 20 4.83		0 0 10.80		
ember 13	8 29 0.88		0 0 13.67		

HYGEA.

1850.					
r 1	12 46 10.53		19 25 50.79	38 30.77	+ 12 39.98
11	11 58 12.12		19 17 10.07	30 14.89	13 4.82
19	11 19 34.10		19 9 58.15	23 33.88	13 35.73
29	10 32 21.64		19 2 3.50	15 53 37	+ 13 49.87

VICTORIA.

1850.					
ober 31	8 43 49.84		23 23 49.85	49.86	+ 0.01

COMET 1850 I.

1850.					
3 10	10 59 49.43		16 16 24.52		
19	9 24 41.79		15 16 30.26		
24	8 38 16.12		14 49 39.76		
25	8 28 24.85		14 43 43.43		

SUN.

MEAN TIME—WASHINGTON.			APPARENT DECLINATIONS.			VERTICAL SEMI-DIAMETERS.		
1849.		Equation of time.	Observed.	Computed.	C — O	Observed.	Computed.	C — O
		m. s.	° ′ ″	″	″	′ ″	″	″
January	25	+ 12 44.6	— 18 51 25.48	25.60	— 0.12	16 17.61	15.71	— 1.90
February	16	14 20.2	12 10 54.75	52.60	+ 2.15	15.46	12.03	3.43
	17	14 15.7	11 49 52.23	53.07	— 0.84	13.64	11.81	1.83
	24	13 25.9	9 18 7.16	5.61	+ 1.55	12.38	10.23	2.15
March	17	8 26.0	— 1 11 3.51	2.99	0.52	6.19	4.87	1.32
April	3	3 15.9	+ 5 27 40.47	41.23	0.76	2.62	0.38	2.24
	6	2 22.7	6 35 57.90	58.44	+ 0.54	15 61.25	59.38	1.87
	7	2 5.4	6 58 32.19	31.04	— 1.15	62.54	59.11	3.43
	12	+ 0 42.3	8 49 20.34	20.82	+ 0.48	61.09	57.73	3.36
May	3	— 3 16.2	15 46 59.63	60.63	1.00	54.71	52.45	2.26
	17	— 3 53.6	19 24 42.91	44.18	1.27	49.75	49.49	0.26
June	19	+ 0 58.8	23 26 37.99	38.84	+ 0.85	47.35	45.37	1.98
	21	1 25.0	23 27 24.36	22.41	— 1.95	47.54	45.29	2.25
July	19	+ 5 56.8	+ 20 48 22.17	23.68	+ 1.51	48.74	45.71	3.03
September	26	— 8 46.2	— 1 22 53.11	52.71	0.40	61.56	59.28	2.28
	29	9 45.9	2 33 3.24	3.20	0.04	16 1.78	0.12	1.66
October	27	16 0.5	12 55 27.37	25.04	2.33	9.41	7.71	1.70
November	5	— 16 13.8	— 15 48 43.40	42.26	+ 1.14	11.49	9.93	— 1.56

MOON.

MEAN TIME—WASHINGTON.			Limb observed.	APPARENT DECLINATIONS.				Reduction made for defective illumination.	VERTICAL SEMI-DIAMETERS.		
				Observed.	Computed.	C — O.			Observed.	Computed.	C — O.
						N. L.	S. L.				
1849.		h. m. s.		° ′ ″	″	″	″	″	′ ″	′ ″	″
January	4	8 20 35.7	S.	+ 13 28 18.19	26.98		+ 8.79			16 22.23	
February	6	11 58 24.3	N.	14 2 17.45	16.77	— 0.68		+ 0.26	16 4.08	16 0.00	— 4.08
			S.	9.30	16.77		7.47				
March	31	6 48 45.9	N.	17 51 25.68	27.27	+ 1.59				15 57.24	
April	5	11 1 30.3	N.	+ 1 47 41.66	41.94	0.28				15 16.26	
June	4	11 26 57.4	N.	— 16 26 7.60	13.97	6.37				14 42.52	
July	3	10 58 3.1	N.	18 42 28.92	34.72	+ 5.80			14 46.22	14 43.09	— 3.13
			S.	35.19	34.72		+ 0.47	— 3.22			
	30	8 53 54.9	N.	18 18 47.54	54.86	— 6.32				14 44.63	
September	27	8 39 31.3	S.	14 54 6.01	6.85		— 0.84			15 6.17	
	28	9 27 27.5	S.	11 52 49.43	49.20		+ 0.23			15 16.86	
October	25	7 18 7.1	S.	13 29 51.96	50.56		+ 1.40			15 6.08	
	26	8 5 15.8	S.	10 7 3.99	4.51		— 0.52			15 18.26	
	27	8 52 48.8	S.	— 6 7 40.95	42.15		— 1.20			15 32.18	

VENUS.

MEAN TIME—WASHINGTON.		Limb observed.	APPARENT DECLINATIONS. Observed.	Computed.	C — O	VERTICAL SEMI-DIAMETERS. Observed.	Computed.	C — O
1849.	h. m s.		° ′ ″	″	″	″	″	″
February 10	3 3 19.8	N. & S.	+ 3 22 43.78	46.26	+ 2.48	10.72	9.70	— 1.02
March 23	2 49 31.5	N. & S.	21 12 23.90	23.21	0.21	16.77	15.21	1.56
31	2 40 25.4	N. & S.	23 24 12.10	13.76	1.66	17.95	17.06	0.89
April 3	2 35 49.9	N. & S.	24 4 31.73	33.36	1.63	18.34	17.85	0.49
12	2 16 43.1	N. & S.	24 31 17.79	19.49	1.70	22.18	20.56	1.62
May 3	0 47 46.8	N. & S.	24 23 57.84	64.59	6.75	28.76	27.53	1.23
18	23 9 48.7	N. & S.	18 50 (10.37)	21.03	+ (11.34)	29.03	27.99	1.04
September 28	21 36 36.0	N. & S.	12 4 50.31	49.35	— 0.96	7.92	6.79	1.13
October 8	21 43 11.0	N. & S.	+ 8 3 50.75	50.37	— 0.38	7.28	6.55	0.83
November 4	21 59 26.1	N. & S.	— 4 24 38.33	36.33	+ 2.00	6.72	5.80	— 0.92

METIS.°

1849.								
September 27	9 24 23.5	Centre.	— 22 12 25.08	8.50	+ 16.58			
28	9 20 4.6		22 11 21.95	5.65	16.30			
October 8	8 38 36.6		21 50 23.07	15.73	8.34			
11	8 26 46.2		21 40 44.34	34.00	10.34			

CERES.

1849.								
July 30	°9 28 21.5	Centre.	— 29 11 19.65	33.01	— 13.36			

JUPITER.

1849.								
February 6	12 11 57.0	N. & S.	+ 16 34 41.59	44.24	+ 2.65	22.28	21.10	— 1.18
March 23	8 56 49.1	N. & S.	17 55 56.73	59.17	2.44	20.87	19.80	1.07
31	8 24 2.9	N. & S.	18 0 10.72	16.33	5.61	20.24	19.39	0.85
April 5	8 4 2.9	N. & S.	18 1 8.10	10.03	1.93	19.96	19.14	0.82
6	8 1 37.5	N. & S.	18 1 3.79	11.03	7.24	21.62	19.09	2.53
11	7 40 40.7	N. & S.	+ 18 0 24.42	27.47	+ 3.05	20.19	18.76	— 1.43

NEPTUNE.

1849.								
September 24	†10 4 14.7	Centre.	— 11 13 7.51	6.93	+ 0.58			
28	9 48 11.1		11 15 1.99	2.28	— 0.29			
October 8	9 8 5.2		11 19 14.43	17.68	3.25			
11	8 56 6.5		11 20 21.35	23.78	2.43			
25	8 0 20.9		11 24 19.76	20.51	0.75			
27	7 52 25.1		11 24 43.22	43.86	0.64			
November 2	7 28 37.7		11 25 36.09	37.40	1.31			
7	7 8 54.1		— 11 26 1.17	1.44	— 0.27			

° Compared with Hind's Ephemeris, Astronomical Notices, vol. 9, page 190.
† Mean time computed from observed apparent right ascension.

MOON.

MEAN TIME—WASHINGTON.		Limb observed.	APPARENT DECLINATIONS. Observed.	Computed.	C — O N. L.	C — O S. L.	Reduction made for defective illumination.	VERTICAL SEMI-DIAMETERS. Observed.	Computed.	C — O
1850.	h. m. s.		° ′ ″	″	″	″	″	′ ″	′ ″	″
August 14	6 1 11.2	N.	— 13 48 31.89	29.79	+ 2.10				15 15.42	
September 13	6 20 26.5	N.	19 39 54.62	56.46	— 1.84				14 55.93	
October 12	5 50 47.0	S.	20 11 18.17	15.28		+ 2.89			14 50.30	
14	7 25 27.7	S.	17 10 10.97	10.96		0.01			14 45.93	
15	8 11 3.3	S.	— 14 26 11.78	11.19		+ 0.59			14 48.09	

MERCURY.

same decl.?

MEAN TIME—WASHINGTON.		Limb observed.	APPARENT DECLINATIONS. Observed.	Computed.	C — O	VERTICAL DECLINATIONS. Observed.	Computed.	C — O
1850.	h. m. s.		° ′ ″	″	″	° ′ ″	″	″
November 12	23 11 20.1	N.	— 14 43 12.26	16.26	— 4.00		2.37	

VENUS.

1850.								
August 12	2 36 30.1	N.	+ 0 28 14.18	15.30	+ 1.12		7.58	
30	2 39 30.3	N.	— 8 40 41.71	38.97	2.74		8.64	
September 24	2 44 18.6	N.	19 42 26.19	22.01	4.18		10.81	
October 2	2 46 6.3	N.	22 26 42.97	37.59	4.38		11.77	
4	2 46 31.4	N.	23 3 6.56	3.67	2.89		12.03	
5	2 46 43.3	N.	23 20 36.81	32.59	4.22		12.17	
7	2 47 5.5	N.	23 54 2.95	0.27	2.68		12.45	
8	2 47 15.7	N.	24 10 0.04	58.36	1.68		12.60	
9	2 47 25.1	N.	24 25 28.95	25.39	3.56		12.75	
10	2 47 33.6	N.	24 40 25.26	21.05	4.21		12.90	
15	2 47 59.5	N.	25 47 4.11	0.11	4.00		13.73	
16	2 48 0.4	N.	25 58 45.88	42.44	3.44		13.91	
22	2 47 25.6	N.	26 57 24.19	20.96	3.23		15.06	
28	2 45 17.6	N. & S.	27 36 13.33	8.73	4.60	17.79	16.40	— 1.39
29	2 44 44.6	N. & S.	27 40 46.12	42.60	3.52	17.83	16.64	— 1.19
31	2 43 26.9	N. & S.	27 48 18.78	14.07	4.71	16.80	17.14	+ 0.34
November 1	2 42 41.7	N. & S.	27 51 16.12	12.34	3.78	18.60	17.40	— 1.20
13	2 26 36.7	N. & S.	27 47 41.62	38.62	3.00	20.98	21.07	+ 0.09
14	2 24 32.6	N. & S.	27 44 17.50	13.41	4.09	20.73	21.42	0.69
26	1 47 55.4	N. & S.	26 27 24.11	23.15	0.96	25.91	26.04	+ 0.13
30	1 34 14.8	N. & S.	— 25 46 44.68	42.83	+ 1.85	28.80	27.62	— 1.18

PALLAS.

1850.						
September 25	8 59 46.9	Centre.	+ 1 42 51.62	75.13	+ 23.51	

FLORA.

MEAN TIME—WASHINGTON.		Limb observed	APPARENT DECLINATIONS. Observed.	Computed.	C — O
1850.	h. m. s.		° ′ ″	″	″
October 16		Centre.	— 12 9 27.65		
21			10 25.66		
22			10 52.87		
31			11 52 5.39		
November 4			34 19.82		
13			— 10 40 50.48		

VICTORIA.

1850. November 9°	8 11 37.4	Centre.	5 22 40.77	35.82	— 4.95

NEPTUNE.

1850.					
September 21	10 25 59.7	Centre.	— 10 25 23.38	24.84	— 1.46
23	10 17 56.9		10 26 27.84	28.63	0.79
24	10 13 55.6		10 26 58.42	59.97	— 1.55
25	10 9 54.4		10 27 31.68	30.93	+ 0.75
October 1	9 45 48.3		10 30 27.88	27.92	— 0.04
2	9 41 47.5		10 30 54.13	55.84	1.71
3	9 37 46.8		10 31 20.79	23.29	— 2.50
4	9 33 46.2		10 31 51.39	50.25	+ 1.14
5	9 29 45.7		10 32 17.15	16.72	+ 0.43
7	9 21 44.8		10 33 5.85	8.13	— 2.28
8	9 17 44.5		10 33 32.88	33.04	0.16
9	9 13 44.3		10 33 56.86	57.39	0.53
12	9 1 44.4		10 35 6.28	7.09	0.81
14	8 53 44.8		10 35 50.07	50.66	0.59
15	8 49 45.2		10 36 8.86	11.55	2.69
16	8 45 45.7		10 36 31.64	31.82	0.18
19	8 33 47.7		10 37 26.33	28.98	2.65
21	8 25 49.6		10 38 3.80	3.96	— 0.16
22	8 21 50.7		10 38 21.23	20.46	+ 0.77
28	7 57 59.6		10 39 43.03	45.55	— 2.52
29	7 54 1.6		10 39 55.40	57.36	1.96
30	7 50 3.6		10 40 6.85	8.47	1.62
31	7 46 5.7		10 40 18.14	18.88	0.74
November 1	7 42 8.0		10 40 28.33	28.58	0.25
2	7 38 10.4		10 40 36.35	37.56	— 1.21
4	7 30 15.5		10 40 53.49	53.35	+ 0.14
5	7 26 18.2		10 40 59.10	0.14	— 1.04
6	7 22 21.1		10 40 5.18	6.20	1.02
7	7 18 24.1		10 40 10.50	11.52	1.02
9	7 10 30.5		10 40 17.73	19.97	2.24
10	7 6 33.8		10 40 22.86	23.09	0.23
13	6 54 44.7		10 40 25.64	27.98	2.34
14	6 50 48.6		10 40 26.46	28.12	1.76
15	6 46 52.6		10 40 27.19	27.50	0.31
18	6 35 5.4		10 40 18.94	21.12	2.18
24	6 11 34.5		10 40 44.89	48.08	3.19
27	5 59 50.8		10 40 21.12	21.41	0.29
30	5 48 8.2		— 10 39 47.22	48.00	— 0.78

° Mean time and declination computed from Villarceous' Ephemeris.

SUN.

MEAN TIME—WASHINGTON. 1849.		Equation of time.	Limb observed.	RIGHT ASCENSIONS. Observed.	Comp.	C — O.	SIDEREAL TIMES OF SEMI-DIAMETER PASSING. Obs'd.	Comp.	C — O.	Limb observed.	DECLINATIONS. Observed.	Comp.	C — O.	SEMI-DIAMETERS. Obs'd.	Comp.	C — O.	Observer.
		m. s.		h. m. s.	s.	s.	m. s.	m. s.	s.		° ′ ″	″	″	″	″	″	
Jan.	23	+ 12 26.3		20 23 58.29	58.16	— 0.13	1 9.20	1 9.16	—0.04								
	25	12 44.6					8.83	8.94	+ .11		— 18 51 25.27	25.48	+ 0.21	16 17.32	15.71	— 1.61	
Feb.	10	14 32.1		21 37 12.53	12.40	.13	7.17	7.12	— .05								
	15	14 24.0		21 56	46.96		6.61	6.58	— .03								
Mar.	19	9 50.4		23 56 22.37	21.98	— .39	4.23	4.45	+ .22								
	22	6 56.0		0 7 17.07	17.09	+ .02	4.44	4.40	— .04								
	24	6 19.3		0 14 33.32	33.43	+ .11	4.37	4.38	+ .01		+ 1 34 42.75	39.38	— 3.37	16 2.31	2.92	+ 0.61	
	31	4 10.4		0 40 0.10	0.01	— .09	4.46	4.41	— .05								
April	2	3 34.0		0 47 16.59	16.60	+ .01	4.46	4.45	.01								
	5	2 40.3		0 52 12.25	12.40	+ .15	4.57	4.53	.04								
	7	+ 2 5.4		1 5 30.77	30.49	— .28	4.63	4.59	.04								
	23	— 1 44.2		2 4 40.48	40.31	.17	5.41	5.41	.00		12 39 28.28	24.46	3.82	15 56.47	54.81	— 1.66	
May	4	3 22.6		2 46 26.23	26.14	.09	6.30	6.24	.06								
	12	3 53.4		3 17 29.99	29.64	.35	6.97	6.90	.07		18 13 48.84	41.23	7.61	15 50.35	50.49	+ 0.14	
	17	3 53.6		3 37 13.51	13.45	.06	7.36	7.30	— .06		19 24 45.05	44.18	0.87	15 49.47	49.49	+ 0.02	
	21	3 43.4		3 53 11.01	10.92	.09	7.61	7.62	+ .01					15 48.76	48.76	+ 0.00	
	23	— 3 34.9		4 1 13.02	12.93	.09	7.72	7.76	+ .04		20 39 10.27	8.45	— 1.82	15 50.33	48.42	— 1.91	
June	18	+ 0 45.7		5 48 2.79	2.60	.19	8.90	8.89	— .01								
	21	1 25.0		6 0 31.71	31.63	.08	8.92	8.90	.02								
	22	1 38.0		6 4 41.55	41.28	.27	8.91	8.89	— .02								
July	19	5 56.8		7 55 28.04	27.77	— .27	7.60	7.64	+ .04		20 48 18.50	23.68	+ 5.18	15 43.86	45.71	+ 1.85	
Aug.	25	1 50.3		10 17 12.96	13.16	+ .30	4.76	4.70	— .06								
	27	+ 1 16.7		10 24 32.85	32.57	— .28	4.53	4.59	+ .06		+ 9 57 22.78	25.05	2.27	15 49.57	51.72	2.15	
Sept.	3	— 0 52.0		10 49 59.60	59.35	.25	4.13	4.25	+ .12								
	10	3 13.0		11 15 13.86	13.83	.03	4.11	4.06	— .05								
	14	4 36.4		11 29 36.51	36.41	— .10	3.89	4.00	+ .11								
	17	5 39.4		11 40 22.83	22.86	+ .03	3.94	3.99	.05								
	24	8 5.4		12 5 32.36	32.38	+ .02	3.96	4.08	.12								
	25	8 25.8		12 9 8.48	8.41	— .07	4.10	4.11	.01		— 0 59 29.67	27.70	1.97	15 56.03	59.00	2.97	
	29	9 45.8		12 23 34.17	34.30	+ .13	4.17	4.23	.06								
Oct.	20	15 8.4		13 40	58.51		5.65	5.66	+ .01								
Nov.	2	16 16.5		14 31 5.44	5.37	— .07	7.07	7.04	— .03								
	3	16 16.5		14 35 2.12	2.04	.08	7.13	7.16	+ .03								
	5	16 13.8		14 42 57.96	57.87	.09	7.49	7.39	— .10								
	13	15 28.6		15 15 15.97	15.56	.41	8.35	8.35	.00								
	15	15 8.8		15 23 28.61	28.60	.01	8.50	8.59	+ .09								
	20	— 14 4.5		15 44 15.97	15.78	— .19	9.16	9.15	— .01		— 19 57 59.14	57.26	+ 1.88	16 9.24	13.12	+ 3.88	

MOON.

Mean Time—Washington. 1849.		Limb observed.	Right Ascensions. Observed.	Comp.	C—O.	Sidereal Times of Semi-diameter passing. Obs'd.	Comp.	C—O.	Limb observed.	Declinations. Observed.	Comp.	C—O.	Semi-diameters. Obs'd.	Comp.	C—O.	Observer.
	h. m. s		h. m. s.	s.	s.	s.	s.	s.		° ′ ″	″	″	″	′ ″	″	
Jan. 4	8 20 34.9	I.	3 18 42.42	43.27	+ 0.85		1 10.18		S.	+ 13 38 25.74	27.10	+ 1.36		16 22.23		
Feb. 3	9 5 23.5	I.	6 1 55.01	55.35	0.34		11.60									
6	11 58 23.2	I.	9 7 12.83	13.93	1.10		8.66		S.	14 2 13.58	16.77	3.19		16 0.00		
Mar. 7	11 31 47.2	I.	10 34 52.51	53.42	0.91		5.54									
9	13 7 3.1	II.	12 18 17.17	18.02	0.85		3.31									
31	6 48 44.7	I.	7 25 41.02	42.11	1.09		9.85									
April 2	8 36 30.4	I.	9 31 37.26	38.00	0.74		6.95		N.	13 17 4.56	4.97	0.41		15 41.11		
5	11 1 29.6	I.	11 58 49.94	50.55	0.61		3.24		N.	1 47 41.44	41.92	0.48		15 16.26		
May 2	8 59 38.9	I.	11 43 6.12	6.56	0.44		3.21		N.	+ 8 12 53.99	56.95	+ 2.96		15 15.12		
31	8 28 17.5	I.	13 5 59.66	60.58	0.92		2.25									
June 4	11 26 57.1	I.	16 20 54.89	55.15	0.26		3.49									
30	8 39 21.9	I.	15 15 22.64	23.51	0.86		2.77									
July 2	10 10 51.8	I.	16 55 0.63	1.13	0.50		3.90									
Aug. 27	7 35 24.5	I.	17 59 54.95	55.14	0.19		4.67									
30	9 59 56.1	I.	20 36 39.97	40.21	0.24		4.91									
Sept. 25	7 3 36.2	I.	19 22 21.38	21.58	0.20		4.88		S.	— 18 29 25.88	29.20	— 3.32		14 50.86		
27	8 39 31.1	I.	21 6 25.14	25.30	0.16		4.77		S.	14 54 6.50	6.84	0.34		15 6.16		
28	9 27 27.3	I.	21 58 25.83	26.01	0.18		4.72		S.	11 52 44.67	49.21	4.54		15 16.85		
Oct. 24	6 30 59.9	I.	20 43 59.79	60.02	0.23		4.43									
26	8 5 15.2	I.	22 26 23.61	24.26	0.65		4.40									
27	8 54 15.6	I.	23 18 0.87	1.55	0.68		4.77		S.	— 6 7 35.49	42.15	— 6.66		15 32.18		
Dec. 24	7 46 25.1	I.	2 0 7.23	8.12	0.89		6.78									
27	10 35 11.7	I.	5 1 11.26	12.57	+ 1.31		13.17			+ 17 57 31.55	41.41	+ 9.86		16 38.51		

MERCURY.

May 21	1 15 49.7	I.	5 12 54.93	55.29	+ .36		.22			+ 25 14 27.46	23.54	— 3.92	3.36	2.99	— .37	
23	1 22 18.2	I.	5 27 17.71	18.00	.29		.23			25 30 25.84	26.66	+ 0.82	3.12	3.11	— .01	
July 22	22 41 14.0	II.	6 46 16.95	17.29	.34		.26									
Aug. 25	0 36 46.3	I.	10 52 14.43	14.81	+ .38		.16									
27	0 42 3.2	I.	11 5 25.81	25.70	— .11		.16			+ 7 9 48.53	48.68	+ 0.15	3.18	3.30	+ .12	
Sept. 10	1 8 35.3	I.	12 27 14.36	13.92	— .44		.17		Cen.	— 3 21 52.57	54.64	— 2.07				

VENUS.

Feb. 10	3 3 19.8	I.	0 26 26.52	27.73	+ 1.21		0.64			+ 3 22 44.40	46.26	+ 1.86	11.59	9.70	—1.89	
Mar. 22	2 50 24.3	I.	2 51 11.01	12.23	1.22		1.06			20 53 35.01	36.04	1.03	15.94	15.00	0.94	
24	2 48 35.8	I.	2 57 15.74	16.56	0.82		1.09			21 30 39.76	40.87	1.11	16.07	15.42	0.65	
April 2	2 37 26.8	I.	3 21 33.26	34.70	1.44		1.27			23 51 41.66	42.22	0.56	18.64	17.58	1.06	
May 2	0 53 32.1	I.	3 35 37.20	39.48	2.28		1.99									
18	23 9 48.7	II	2 58 38.01	40.54	2.53		1.99			18 50 11.10	21.03	9.93	28.63	27.99	—0.64	
20	22 58 27.9	II.	2 55 8.60	10.94	2.34		1.95			18 5 39.96	48.96	9.00	27.09	27.54	+ .45	
22	22 47 37.6	II.	2 52 9.96	11.99	+ 2.03		1.89			17 23 29.45	40.18	10.73	26.63	27.02	.39	
Oct. 22	21 51 34.6	II.	11 59 12.72	12.64	— 0.08		0.41			+ 1 45	10.96		6.06	6.09	+ .03	
Nov. 19	22 10 14.8	II.	14 8 19.78	19.37	— 0.41		0.38			— 11 17 15.95	14.07	+ 1.88	6.64	5.53	—1.11	

MARS.

Dec. 11	12 30 58.8	I.	5 54 14.23	12.45	— 1.78		.56		N.	+ 26 18 1.85	19.81	+ 17.96		7.64		
17	11 56 54.7	I.	5 43 43.61	42.17	— 1.44		.57		N.	+ 26 27 27.73	41.33	+ 13.60		7.59		
27	11 1 7.3	I.	5 27 10.92	11.18	+ 0.26		.55									

CERES.

MEAN TIME—WASHINGTON. 1849.		Limb observed.	RIGHT ASCENSIONS. Observed.	Comp	C — O.	SIDEREAL TIMES OF SEMI-DIAMETER PASSING. Obs'd.	Comp.	C — O	Limb observed.	DECLINATIONS. Observed.	Comp.	C — O.	SEMI-DIAMETERS. Obs'd.	Comp.	C — O.	Observer.
	h. m. s.		h. m. s.	s.	s.	s.	s.	s.		h. m. s.	s.	s.	s.	s.	s.	
Sept. 7	6 53 37.9		18 3 23 84	33.03	+ 9.19					— 29 37 12.10	22.20	— 10.10				

METIS.

Sept. 10	10 41 57.5		22 2 10.32	9.32	— 1.00					— 21 58 29.46	14.35	+ 15.11				
18	10 4 35.6		21 56 10.92	10.67	.25					22 12 38.24	20.91	17.33				
21	9 50 54.1		54 20.55	20.23	.32					22 14 25.16	11.19	13.97				
25	9 33 7.5		52 17.03	16.36	.67					22 13 50.81	38.47	12.34				
27	9 24 23.9		51 25.31	24.92	.39					22 12 17.27	8.48	8.79				
28	9 20 5.5		51 2.80	1.88	.92					22 11 22.87	5.68	+ 17.19				
Oct. 8	8 38 36.8		48 52.82	52.57	— .25					— 21 50 28.45	2.43	— 26.02				

JUPITER.

Mar. 24	8 52 42.0		9 2 23.08	22.53	— 0.55	1.45	1.49	+ 0.04		+ 17 56 42.18	42.88	+ 0.77	20.77	19.77	— 1.00	
31	8 24 12.5		1 24.89	24.24	.65	1.44	1.47	.03								
April 2	8 26 10.9		1 15.06	14.39	.67	1.45	1.47	+ .02		18 0 45.56	47.61	2.05	19.34	19.33	.01	
10	7 44 34.4		1 5.75	5.19	.56	1.49	1.43	— .06		18 0 40.37	42.59	+ 2.22	19.98	18.82	1.16	
11	7 40 40.8		1 8.04	7.42	.62	1.51	1.43	.08		18 0 28.38	27.47	— 0.91	20.50	18.76	1.74	
14	7 29 4.1	I.	1 19.09	18.55	.54		1.42									
16	7 21 23.4		1	29.69			1.41			17 58 22.78	24.12	+ 1.34	19.71	18.37	1.34	
19	7 9 57.8		1 52.25	51.87	.38	1.43	1.39	— .04		+ 17 56 31.07	32.62	+ 1.55	19.04	17.67	— 1.37	
May 1	6 25 18.9		4 24.92	24.29	.63	1.31	1.34	+ .03								
2	6 21 41.0		4 41.91	41.39	— .52	1.21	1.34	+ .13								

SATURN.

Nov. 5	9 10 17.2		0 11 3.32	1.87	— 1.45	0.59	0.62	+ 0.03		— 1 38 6.53	10.36	— 3.83	9.15	8.71	— 0.44	
Dec. 5	7 5 40.4		8 19.38	17.83	1.55	.59	.59	.00								
17	6 22 36.8		8 50.70	49.36	1.34	.56	.58	.02								
21	6 7 29.7		9 13.84	12.51	— 1.33	.54	.58	+ .04								

NEPTUNE.

Sept. 5	11 20 46.1		22 21 22.36	22.50	+ 0.14					— 11 2 39.26	42.55	— 3.29				
10	11 0 36.5		20 52.20	52.32	.12					5 37.53	36.46	+ 1.07				
12	10 52 32.8		20 40.41	40.47	.06					6 47.72	44.44	+ 3.28				
18	10 28 22.9		20 5.89	5.94	+ .05					10 0.14	1.85	— 1.71				
21	10 16 18.7		19 49.47	49.32	— .15					11 31.78	36.35	4.57				
24	10 4 14.9		19 33.16	33.27	+ .11					13 6.83	6.95	0.12				
25	10 0 13.9		19 28.03	28.10	.07					13 31.70	36.43	4.73				
28	9 48 11.0		19 12.64	12.89	+ .25					15 0.63	2.68	— 2.05				
Oct. 8	9 8 6.4		18 27.33	27.28	— .05					19 17.62	17.55	+ 0.07				
24	8 4 19.0		17 34.37	34.16	.21					24 5.06	7.83	— 2.77				
27	7 52 24.5		17 27.51	27.45	— .06					24 40.31	43.86	2.55				
Nov. 3	7 24 41.6		17 15.71	15.80	+ .09					25 42.96	43.85	0.89				
5	7 16 47.5		17 13.46	13.59	.13					25 54.06	54.57	— 0.51				
7	7 8 54.0		17 11.88	11.89	.01											
12	6 49 12.5		17 9.85	9.86	+ .01											

SUN.

MEAN TIME—WASHINGTON.		Limb observed.	RIGHT ASCENSIONS.			SIDEREAL TIMES OF SEMI-DIAMETER PASSING.			Limb observed.	DECLINATIONS.			SEMI-DIAMETERS.			Observer.
1850.	Equation of time.		Observed.	Comp.	C — O	Observ'd	Comp.	C — O		Observed.	Comp.	C — O	Observ'd.	Comp.	C — O	
	m. s.		h. m. s.	s.	s.	m. s.	s.	s.		° ′ ″	″	″	′ ″	″	″	
Jan. 5	+ 5 47.31		19 5 32.46	32.48	+ 0.02	1 10.70	10.79	— 0.09								M
12	8 42.34		19 36 4.12	4.04	— .08	10.17	10.27	.10								
19	11 7.11		20 6 4.94	4.95	+ .01	9.62	9.61	.01								
22	+11 58.05		20 18 45.74	45.70	— .04	9.37	9.30	.07								
Sept. 28	— 9 22.53		12 19 3.51	3.34	— .17	4.23	4.05	.18								
30	10 1.62		12 26	17.54	- - -	4.00	2.26	- - -		— 2 50 35.91	36.90	— 0.99	16 1.98	0.29	— 1.69	
Oct. 1	10 20.74		12 29 55.14	54.91	— .23	4.25	4.27	+ .02		— 3 13 53.32	57.33	— 4.01	16 0.58	0.56	— 0.02	
4	11 6.21		12 40 49.03	48.95	— .08	4.49	4.44	— .05								
Nov. 6	16 11.66		14 45 58.71	58.95	+ .24	7.54	7.47	.07								
9	15 59.06		14 58 1.28	1.25	— .03	7.84	7.83	— .01								
14	15 21.49		15 18 21.59	21.71	+ .12	8.32	8.43	+ .14								
26	—12 27.34		16 8 34.94	34.90	— .04	9.81	9.77	— .04								

MOON.

MEAN TIME—WASHINGTON. 1850.		Limb observed.	RIGHT ASCENSIONS. Observed.	Comp.	C — O	SIDEREAL TIMES OF SEMI-DIAMETER PASSING. Observ'd.	Comp.	C — O	Limb observed.	DECLINATIONS. Observed.	Comp.	C — O	SEMI-DIAMETERS. Observ'd.	Comp.	C — O	Observer.
	h. m s.		h. m. s.	s.	s.	m. s.	s.	s.		° ′ ″	″	″	′ ″	″	″	
Feb. 22	9 3 13.4	I.	7 13 41.67	41.92	+ 0.25		12.74									
23	10 3 42.6	I.	8 18 16.41	17.19	.78		12.35									
April 29	15 6 6.1	II.	17 37 44.89	45.29	.40		5.51									
Sept. 16	8 44 30.9	I.	20 27 5.97	6.30	.33		4.28									
17	9 30 50.4	I.	21 17 29.39	29.78	.39		3.55			— 16 1 37.21	39.26	— 2.05		45.48		
Oct. 15	8 11 3.4	..	21 47	53.12	- - -		- -			14 26 8.31	11.31	3.00		48.09		
Nov. 13	7 33 36.2	I.	23 4 39.36	39.78	.42		2.39			- - - -	- -	- - -		- -		
14	8 17 18.4	I.	23 52 25.29	25.79	.50		2.41			4 51 58.67	63.20	4.53		3.34		
Dec. 11	6 10 59.1	I.	23 32 12.57	12.74	.17		1.95			6 56 3.04	4.26	1.22		53.30		
13	7 37 52.1	I.	1 7 12.18	13.18	+ 1.00		3.00			— 1 54 36.00	38.27	— 2.27		13.82		

MERCURY.

Nov. 13	23 13 36.4	I.	14 47 14.77	14.53	— 0.24	- -	0.16	- - -	Cen.	— 15 18 48.12	42.09	+ 6.03				

VENUS.

May 13	1 12 6.2	I.	4 36 41.13	41.64	+ 0.51		0.37			+ 22 38 31.91	32.36	+ 0.45	6.02	5.14	— 0.88	
Sept. 23	2 44 5.1	I.	14 53 17.01	16.91	— .10		.75			— 19 19 60.25	52.79	7.46	11.60	10.70	0.90	
Oct. 1	2 45 53.8	I.	15 26 38.49	37.93	.56		.82			22 7 46.56	41.46	5.10	13.25	11.64	1.61	
3	2 46 19.7	I.	15 34 57.54	56.82	.72		.85			22 45						
8	2 47 16.3	..	15 55	36.42	- - -		- -			24 9 65.14	58.46	6.68	13.11	12.60	0.51	
15	2 47 59.9	I.	16 23 56.64	56.19	.45		1.01			25 47 7.43	0.19	7.24	14.53	13.73	0.80	
16	2 48 1.6	I.	16 27 54.80	53.71	1.09		1.03			25 58 48.96	42.52	6.44	14.45	13.95	0.50	
29	2 44 45.0	I.	17 15	52.52	- - -		- -			27 40 48.57	42.69	5.88	17.54	16.64	— 0.90	
31	2 43 27.7	I.	17 22 28.51	27.71	0.80		1.29			27 48 23.49	14.13	9.36	16.72	17.14	+ 0.42	
Nov. 2	2 41 53.5	I.	17 28 47.13	45.81	1.32		1.31			27 53 45.25	39.46	5.79	17.17	17.67	0.50	
4	2 39 59.3	I.	17 34 45.77	44.92	0.85		1.34			27 57 5.93	0.88	+ 5.05	18.16	18.22	0.06	
6	2 37 45.1	I.	17 40 24.33	23.04	1.29		1.42			27 58 20.43	20.81	— 0.38	18.00	18.80	0.80	
9	2 33 39.7	I.	17 48 7.86	6.32	1.54		1.48			27 56 41.06	38.19	+ 2.87	17.90	19.73	1.83	
13	2 26 38.9	I.	17 56 52.12	49.95	2.17		1.58			27 47 45.70	38.67	7.03	20.75	21.07	+ 0.32	
14	2 24 34.3	I.	17 58 43.79	42.10	1.69		1.62			27 44 15.83	8.85	6.98	21.50	21.42	— 0.08	
26	1 47 57.6	I.	18 9 19.65	17.51	— 2.14		1.94			26 27 33.99	23.20	10.79	24.82	26.05	+ 1.23	
Dec. 11	0 28 12.6	..	17 48	27.85	- - -		- -			— 23 15 8.45	4.89	+ 3.56	32.76	30.84	— 1.92	

MARS.

Jan. 14	9 31 34.2	..	5 8 21.32	19.60	— 1.72	0.39	0.48	+ 0.09		+ 26 15	43.53	- - -		6.36		
19	9 10 1.9	I.	5 6 28.31	27.12	1.19	- -	.45	- - -	N.	26 10 40.49	51.51	+11.02		6.07		
29	8 31 18.2	..	5 7	2.76	- - -	.43	.41	— .02	N.	26 3 56.82	66.22	9.40		5.49		
Feb. 16	7 33 51.4	..	5 20	24.50	- - -	- -	.34	- - -	N.	26 1 18.70	22.53	3.83		4.59		
25	7 9 46.6	..	5 31 45.71	44.75	0.76	.29	.31	+ .02	N.	26 1 20.03	28.95	+ 8.92		4.22		
March 11	6 36 44.0	..	5 53 49.21	48.74	— 0.47	.33	.27	— .06	N.	+ 25 57	0.08					

VESTA.

Feb. 23	8 38 50.5		6 53 11.16	12.69	+ 1.53					+ 25 58 66.57	50.57	— 16.00				
March 8	7 48 57.2		6 54 24.84	26.54	+ 1.71					+ 26 8 19.23	9.99	— 9.24				

FLORA.

Mean Time—Washington. 1850.		Limb observed.	Right Ascensions. Observed.	Comp.	C — O	Sidereal Times of Semi-Diameter Passing. Observed.	Comp.	C — O	Limb observed.	Declinations. Observed.	Comp.	C — O	Semi-Diameters. Observ'd.	Comp.	C — O	Observer.
	h. m. s.		h. m. s.	s.	s.	m. s.	s.	s.		° ′ ″	″	″	′ ″	″	″	
Oct. 1	11 33 39.9		0 15 51.18	54.31	+ 3.13					— 11 13 74.03	58.32	+ 15.71				
9	10 55.38.9		0 9	19.54	- - -					11 52 34.70	20.31	+ 14.49				
Nov. 4	9 2 50.7		23 58 40.09	- -	- - -					11 34 16.52						
13	8 29 1.1		0 0 13.87	- -	- - -					— 10 40.47.80						

JUPITER.

March 8	12 12 31.7		11 18 42.61	41.73	— 0.88				N.	+ 6 4 41.12	46.03	+ 4.91		20.92		
April 17	9 19 18.7		11 2 43.30	42.43	.87					7 42 5.33	17.78	+ 12.45	20.40	19.81	— 0.59	
May 6	8 1 49.6		10 59 56.00	55.39	— 0.61					+ 7 55	42.72					

SATURN.

Nov. 14	9 24 22.1		0 59 42.56	41.30	— 1.26				N.	+ 3 25 33.86	40.82	+ 6.96		8.80		
Dec. 13	7 27 51.9		0 56 11.13	9.91	— 1.22				N.	+ 3 11 0.38	4.18	+ 3.80		8.40		

URANUS.

Dec. 13	8 10 6.2		1 39	32.58					Cen.	+ 9 45 15.10	59.20	+ 44.10				

NEPTUNE.

Sept. 21	10 25 59.5		22 28 34.20	34.39	+ 0.19					— 10 25 25.99	24.86	+ 1.13				
23	10 17 56.7		28 23.20	28.38	.18					26 29.63	28.67	0.96				
Oct. 1	9 45 48.1		27 41.70	41.84	.14					30 28.71	27.95	+ 0.76				
3	9 37 46.8		27 32.17	32.18	.01					31 22.11	23.31	— 1.20				
9	9 13 44.1		27 4.83	5.11	.28					33 60.78	57.41	+ 3.37				
15	8 49 45.2		26	41.31	- - -					36 10.66	11.55	— 0.89				
28	7 58 0.1		26 2.23	2.51	.28					39 47.40	45.54	+ 1.86				
29	7 54 1.8		26 0.50	0.31	— .19					39 55.35	57.36	— 2.01				
31	7 46 5.6		25 56.16	56.26	+ .10					40 20.40	18.88	+ 1.52				
Nov. 6	7 22 21.1		25 47.01	47.03	+ .02					40 7.07	6.20	0.87				
9	7 10 30.5		25	44.10	- - -					+ 41 20.06	19.97	+ 0.09				

RESULTS OF OBSERVATIONS

WITH

THE EQUATORIAL,

IN THE YEARS

1849 AND 1850.

NATIONAL OBSERVATORY.

APPARENT PLACES OF COMET III, 1849, (SCHWEITZER'S.)

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1849.	h. m. s.		h. m. s.	° ′ ″	
April 19	10 35 0.1	Bessel's Zones, 412, 151	13 55 37.57	+ 23 55 54.42	10
20	9 18 27.2	(a)	13 42 14.07	+ 22 44 58.90	6
29	10 58 17.2	Weisse X, 859	10 49 52.65	— 0 49 20.01	5
29	10 58 17.2	21026, Lalande	10 49 52.63	— 0 49 19.49	5

MEAN PLACES, 1850.0, OF STARS OBSERVED WITH COMET III, 1849.

STARS.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Bessel's Zones, 412, 151	9	13 54 36.63	Washington Mural	+ 23 55 56.47	Washington Mural, 1 obs.
(a)	9	13 41 13.61	Washington Mural, 1 obs.	+ 22 45 57.24	Washington Mural, 2 obs.
Weisse X, 859	8	10 46 54.69	Washington Mural, 2 obs.	— 0 43 15.33	Washington Mural, 2 obs.
21026, Lalande	8	10 48 26.00	Washington Mural, 2 obs.	— 0 49 8.86	Washington Mural, 2 obs.

APPARENT PLACES OF METIS.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1849.	h. m. s.		h. m. s.	° ′ ″	
September 9	9 35 47.1	7724, B. A. Catalogue	22 3 2.14	— 21 55 41.97	16
10	8 56 38.5	7724, B. A. Catalogue	22 2 13.28	21 58 20.80	13
11	10 50 54.1	7724, B. A. Catalogue	22 1 19.94	22 1 4.58	7
12	10 23 32.6	7724, B. A. Catalogue	22 0 32.45	22 3 20.06	4
13	9 59 50.4	43106, Lalande	21 59 45.81	22 5 22.37	4
		7724, B. A. Catalogue	21 59 46.60	22 5 24.85	4
14	8 18 4.4	43106, Lalande	21 59 3.11	22 7 8.51	7
		7724, B. A. Catalogue	21 59 3.68	22 7 11.58	7
15	10 9 15.8	43106, Lalande	21 58 15.29	22 9 2.58	4
16	9 47 52.8	43106, Lalande	21 57 33.32	22 10 23.52	3
18	10 21 6.9	43106, Lalande	21 56 10.26	22 12 40.13	5
October 13	8 12 47.1	42700, Lalande	21 48 56.85	21 33 29.18	5
	8 20 48.6	7649, B. A. Catalogue	21 48 57.77	21 33 27.96	4
14	8 2 21.0	(5)	21 49 2.53	21 29 43.94	4
		(6)	21 49 4.01	21 29 40.68	4
15	8 27 6.8	(5)	21 49 11.46	21 25 32.03	4
		(6)	21 49 12.60	21 25 31.89	4
24	8 52 47.1	(7)	21 51 48.57	20 42 56.12	4
25	7 13 14.3	(7)	21 52 11.80	20 37 7.79	7
	7 24 51.8	(8)	21 52 12.10	20 37 0.94	5
27	8 30 8.9	42813, Lalande	21 53 9.84	20 35 28.14	5
	8 23 49.4	(8)	21 53 9.78	20 25 21.11	4
November 2	8 12 6.6	(9)	21 56 37.05	19 48 21.52	16
	8 55 5.8	43040, Lalande	21 56 36.92	19 48 8.84	2
3	8 23 27.2	43040, Lalande	21 57 15.40	19 41 50.82	5
4	7 3 50.1	43040, Lalande	21 57 53.80	19 35 22.19	13
5	8 27 31.9	43040, Lalande	21 58 38.58	19 28 6.91	7
6	7 37 51.9	43040, Lalande	21 59 20.49	19 21 26.12	5
		7711, B. A. Catalogue	21 59 21.40	19 21 27.52	5
7	7 46 5.3	7711, B. A. Catalogue	22 0 6.99	— 19 14 7.03	8

APPARENT PLACES OF METIS—Continued.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1849.	h. m. s.		h. m. s.	° ′ ″	
November 10	7 11 58.7	7711, B A. Catalogue	22 2 28.46	— 18 52 39.62	5
12	8 52 49.5	43288, Lalande	22 4 14.36	18 37 0.02	8
13	7 36 56.5	43288, Lalande	22 5 4.81	18 29 42.31	6
27	7 35 52.2	(10)	22 19 27.53	16 31 39.56	5
December 5	7 1 56.9	7836, B. A. Catalogue	22 28 57.18	16 16 33.02	5
	7 1 18.2	(11)	22 28 57.65	15 16 34.82	4
6	6 38 44.7	Weisse XXII, 640	22 30 11.70	15 6 54.88	5
	6 53 25.2	Weisse XXII, 644	22 30 12.48	15 6 48.81	16
11	5 44 18.2	Weisse XXII, 815	22 36 41.53	14 16 42.32	6
	5 43 57.1	7954, B. A. Catalogue	22 36 41.84	14 16 49.29	7
12	6 26 14.2	7954, B. A. Catalogue	22 38 0.93	14 6 40.42	6
18	6 2 19.6	7976, B. A. Catalogue	22 46 14.41	13 3 49.66	9
24	7 2 6.8	Weisse XXII, 1149	22 54 54.94	11 57 51.54	6
		Weisse XXII, 1156	22 54 55.19	11 57 48.62	6
27	6 16 3.8	Weisse XXII, 1132	22 59 17.84	11 24 32.35	8
31	6 31 54.9	Weisse XXIII, 85	23 5 20.71	— 10 38 40.44	7

MEAN PLACES FOR 1850.0 OF STARS COMPARED WITH METIS.

STARS.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
7724, B. A. Catalogue	7	22 2 42.36	Argelander's Zone, 248, 4	— 21 58 1.17	Washington Mural, 4 obs.
43106, Lalande	8	21 59 29.99	Wash. Mer. Circle, 1 obs.	22 19 19.39	Washington Mural, 3 obs.
42700, Lalande	7	21 47 15.48	Wash. Mer. Circle, 1 obs.	21 50 46.61	Washington Mural, 3 obs.
7649, B. A. Catalogue	6.5	21 50 21.58	Arg. Zones, 237, 100, & 246, 1	21 53 44.92	Washington Mural, 5 obs.
(5)	9	21 48 12.16	Washington Mural, 2 obs.	21 28 27.13	Washington Mural, 3 obs.
(6)	8.5	21 49 56.71	Wash. Mer. Circle, 1 obs.	21 26 55.59	Washington Mural, 3 obs.
(7)	9	21 50 58.90	Washington Mural, 1 obs.	20 43 6.94	Washington Mural, 3 obs.
(8)	9	21 52 45.70	Washington Mural, 1 obs.	20 30 24.56	Washington Mural, 1 obs.
42813, Lalande	9	21 50 31.42	Lalande Catalogue	20 19 14.88	Washington Mural, 3 obs.
(9)		21 56 37.07	Washington Equatorial	19 48 0.46	Washington Mural, 3 obs.
43040, Lalande	7.8	21 57 32.71	Rumker Catalogue	19 23 42.08	Washington Mural, 6 obs.
43288, Lalande	9.5	22 4 21.35	Rumker Catalogue	18 45 55.24	Washington Mural, 4 obs.
(10)	9	22 20 37.00	Washington Equatorial	16 25 47.82	Washington Mural, 3 obs.
7836, B. A. Catalogue	6	22 22 14.64	Rumker Catalogue	15 21 2.46	Washington Mural, 6 obs.
(11)	9	22 22 55.18	Washington Equatorial	15 19 59.77	Washington Mural, 3 obs.
Weisse XXII, 640	9	22 30 29.75	Weisse Catalogue	14 50 8.27	Washington Mural, 3 obs.
Weisse XXII, 644	8	22 30 34.24	Weisse Catalogue	14 50 42.67	Washington Mural, 6 obs.
Weisse XXII, 815	9	22 38 15.76	Weisse Catalogue	14 18 48.97	Washington Mural, 3 obs.
7954, B. A. Catalogue	5	22 41 38.67	Rumker Catalogue	14 22 58.48	Washington Mural, 5 obs.
7976, B. A. Catalogue	7	22 46 12.52	B. A. Catalogue	12 59 7.68	Washington Mural, 3 obs.
Weisse XXII, 1149	8.2	22 54 31.62	Struve Cat. Gen.	12 7 0.22	Washington Mural, 2 obs.
Weisse XXII, 1156	8	22 54 40.99	Weisse Catalogue	12 4 13.71	Washington Mural, 3 obs.
Weisse XXII, 1132	8	22 58 3.31	Weisse Catalogue	11 14 45.43	Washington Mural, 3 obs.
Weisse XXIII, 85	9	23 5 40.40	Weisse Catalogue	— 10 44 44.63	Washington Mural, 2 obs.

APPARENT PLACES OF ASTRÆA.

MEAN TIME—WASHINGTON.			COMPARISON STAR.	α	δ	No. of Comp.
1849.		h. m. s.		h. m. s.	° ′ ″	
October	15	9 45 36.4	Weisse III, 781	3 36 34.17	+ 10 57 13.07	4
November	2	11 14 52.7	(12)	3 23 44.52	9 33 8.03	4
	4	10 2 45.4	(12)	3 21 59.41	9 24 1.26	8
	5	10 34 7.8	(12)	3 21 3.33	9 19 23.66	4
	6	10 7 13.8	(12)	3 20 9.15	9 14 54.70	7
		10 37 36.8	1068, B. A. Catalogue	3 20 7.84	9 14 53.80	6
	7	9 14 43.2	1068, B. A. Catalogue	3 19 15.19	9 10 35.26	10
	10	9 35 44.7	1068, B. A. Catalogue	3 16 23.28	8 57 31.13	4
	12	11 54 21.5	(13)	3 14 23.78	8 48 46.63	3
	13	9 29 15.5	(13)	3 13 31.07	8 45 6.66	5
		9 37 19.4	1057, B. A. Catalogue	3 13 30.88	8 45 5.39	5
	24	10 4 46.1	975, B. A. Catalogue	3 3 8.42	8 7 59.50	5
			Weisse III, 35	3 3 8.75	8 7 59.39	4
		10 14 16.4	Weisse III, 62	3 3 8.77	8 7 59.07	3
	26	10 29 12.5	975, B. A. Catalogue	3 1 22.49	8 2 57.73	8
	27	8 46 45.8	975, B. A. Catalogue	3 0 35.20	8 0 49.88	10
December	6	9 24 53.4	Weisse III, 967	2 53 44.04	7 47 38.56	11
	13	7 59 43.2	905, B. A. Catalogue	2 50 13.83	7 46 37.42	3
			Weisse III, 967	2 50 14.09	7 46 35.67	3
	17	7 47 39.0	905, B. A. Catalogue	2 48 4.68	7 50 42.73	11
	24	7 49 17.5	929, B. A. Catalogue	2 46 16.77	8 3 41.22	3
	27	11 28 36.7	929, B. A. Catalogue	2 45 56.84	8 12 13.08	4
	31	7 26 49.7	929, B. A. Catalogue	2 45 59.99	8 19 38.87	3

MEAN PLACES, 1850.0, OF STARS COMPARED WITH ASTRÆA.

STARS.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
781, B. A. Catalogue	8.9	3 40 36.99	Weisse Catalogue	+ 11 14 38.91	Washington Mural, 2 obs.
(12)	9	3 21 18.73	Weisse Catalogue	9 26 9.52	Washington Mural, 2 obs.
1068, B. A. Catalogue	4	3 19 2.65	Rumker's Catalogue	9 12 20.79	Washington Mural, 2 obs.
(13)	9	3 13 29.17	Washington Equatorial	8 49 6.72	Washington Mural, 2 obs.
1057, B. A. Catalogue	5	3 16 44.90	Santini Catalogue	8 29 49.97	Washington Mural, 3 obs.
975, B. A. Catalogue	7	3 0 37.15	B. A. Catalogue	7 53 21.64	Washington Mural, 2 obs.
Weisse III, 35	9	3 3 2.66	Weisse Catalogue	8 9 6.47	Washington Mural, 2 obs.
Weisse III, 62	9	3 4 33.00	Weisse Catalogue	8 1 83.89	Washington Mural, 2 obs.
Weisse II, 967	8	2 54 47.48	Weisse Catalogue	7 52 46.52	Washington Mural, 2 obs.
905, B. A. Catalogue	6.7	2 48 12.73	Santini Catalogue	7 46 30.35	Washington Mural, 2 obs.
929, B. A. Catalogue	4	2 51 40.83	Santini Catalogue	+ 8 18 22 67	Washington Mural, 2 obs.

APPARENT PLACES OF CERES.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of Comp.
1849.	h. m. s.		h. m. s.	° ′ ″	
September 18	8 12 35.17	6209, B. A. Catalogue	18 10 22.47	— 29 32 15.42	3
19	8 14 30.0	6209, B. A. Catalogue	18 11 7.55	29 37 4.94	3
21	7 28 8.2	6209, B. A. Catalogue	18 12 40.87	29 36 40.54	5

MEAN PLACE 6209, B. A. C., 1850.0.

STARS.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
6209, B. A. Catalogue	(3.4)	18 11 23.42		— 29 53 6.22	Rumker's Catalogue

APPARENT PLACE OF VESTA.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of Comp.
1849.	h. m. s.		h. m. s.	° ′ ″	
December 31	11 50 8.5	2544, B. A. Catalogue	7 36 52.21	+ 22 29 16.51	6

MEAN PLACE FOR 1850.0 OF STAR OF COMPARISON.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
2544, B. A. Catalogue	7	7 34 25.70		+ 22 44 57.91	B. A. Catalogue

APPARENT PLACES OF MARS.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of Comp.
1849.	h. m. s.		h. m. s.	° ′ ″	
November 2	14 20 48.9	Bessel's Zones, 348, 84	6 25 53.91		
	14 30 56.6	Bessel's Zones, 348, 84		+ 24 30 41.72	
4	13 17 55.7	Bessel's Zones, 348, 95	6 26 26.62	24 25 36.83	
	14 26 44.3	Bessel's Zones, 348, 95	6 26 27.35	24 25 44.24	
6	13 13 7.8	Bessel's Zones, 348, 95	6 25 47.96	24 30 47.15	
12	13 11 50.2	12557, Lalande	6 25 22.91	24 48 15.48	
	14 39 30.9	12557, Lalande	6 25 22.04	24 48 26.66	
13	12 23 58.2	12557, Lalande	6 26 6.28	24 51 14.15	
24	12 12 43.1	Bessel's Zones, 523, 106	6 18 41.14		
	12 8 4.7	Bessel's Zones, 523, 106		25 27 57.34	
	12 13 6.4	Bessel's Zones, 523, 106		25 28 2.96	
26	12 15 0.8	12337, Lalande	6 16 30.92		
	12 13 46.6	12337, Lalande		25 34 51.32	
	14 21 2.9	12337, Lalande		25 35 10.77	
December 6	12 17 40.4	11684, Lalande	6 2 37.83	26 6 1.00	
	12 20 41.9	11684, Lalande	6 2 37.43	26 6 8.18	
	12 8 0.4	11714, Lalande	6 2 38.75	26 5 59.05	
	12 10 14.8	11714, Lalande	6 2 38.38	26 6 5.51	
11	10 26 55.4	1673, Rumker	5 54 23.10	26 17 48.15	
	10 27 43.4	1673, Rumker	5 54 23.94	26 17 56.66	
12	11 2 19.8	1680, Rumker	5 52 35.82	26 19 45.35	
	11 8 1.5	1680, Rumker	5 52 35.98	26 19 53.01	
17	10 34 29.8	Bessel's Zones, 405, 56	5 43 49.99	26 27 22.37	
	10 47 34.5	Bessel's Zones, 405, 56	5 43 58.98	26 27 17.53	
27	9 32 35.4	Bessel's Zones, 405, 28	5 27 16.33	26 30 58.65	
	9 32 17.1	Bessel's Zones, 405, 28	5 27 16.38	26 31 2.63	
31	9 27 39.6	Bessel's Zones, 405, 15	5 21 35.02	26 28 59.32	
	9 30 37.1	Bessel's Zones, 405, 15	5 21 34.73	+ 26 29 8.80	

MEAN PLACES OF STARS COMPARED WITH MARS.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Bessel's Zones, 348, 84		6 18 48.31	Washington Mural, 1 obs.	+ 24 20 31.09	Washington Mural, 3 obs.
Bessel's Zones, 348, 95		6 27 56.20	Washington Mural, 1 obs.	24 31 3.86	Washington Mural, 1 obs.
12557, Lalande		6 25 50.59	Washington Mural, 1 obs.	24 44 45.64	Washington Mural, 1 obs.
Bessel's Zones, 523, 106		6 18 2.98	Washington Mural, 1 obs.	25 27 32.69	Washington Mural, 1 obs.
12237, Lalande		6 16 50.58	Washington Mural, 1 obs.	25 35 23.01	Washington Mural, 1 obs.
11714, Lalande		6 2 26.09	Washington Mural, 1 obs.	26 0 42.36	Washington Mural, 1 obs.
11684, Lalande		6 1 33.98	Washington Mural, 1 obs.	26 2 16.58	Washington Mural, 1 obs.
1673, Rumker		5 54 7.70	Chilé Expedition	26 16 31.14	Washington Mural, 10 obs.
1680, Rumker		5 54 31.46	Chilé Expedition	26 21 1.58	Washington Mural, 11 obs.
Bessel's Zones, 405, 56		5 46 18.69	Chilé Expedition	26 26 48.67	Washington Mural, 10 obs.
Bessel's Zones, 405, 28		5 29 36.63	Chilé Expedition	26 31 31.45	Washington Mural, 12 obs.
Bessel's Zones, 405, 15		5 21 43.14	Chilé Expedition	+ 26 27 47.06	Washington Mural, 11 obs.

APPARENT PLACES OF METIS.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
January 5	7 15 31.0	8109, B. A. Catalogue	23 13 5.34	— 9 39 50.62	3
14	6 58 42.6	Weisse XXIII, 592	23 29 39.11	— 7 51 19.32	7

MEAN PLACES, 1850.0, OF STARS COMPARED WITH METIS.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
8109, B. A. Catalogue	5	23 10 6.27	M. 3, 57†	— 10 0 1.74	Y. 2, 54.†
Weisse XXIII, 592	9	23 28 33.35	Rumker's Catalogue	— 7 56 44.11	Y. 2, 57.

APPARENT PLACES OF ASTRÆ.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
January 14	9 49 22.5	Weisse II, 880, 893	2 49 45.26	+ 9 27 34.66	3
February 5	8 6 32.0	Weisse III, 114	2 49 44.71	9 27 36.50	3
11	9 9 36.5	Weisse III, 172	3 6 7.62	11 44 49.09	10
14	7 9 17.9	Weisse III, 205	3 12 31.87	12 27 44.69	8
16	9 30 52.5	Weisse III, 306	3 15 53.40	12 48 45.24	6
17	8 58 18.7	Weisse III, 306	3 18 25.43	13 4 18.45	10
19	8 22 14.0	Weisse III, 447	3 19 36.58	13 11 9.65	6
22	8 25 2.5	Weisse III, 474	3 22 6.77	13 25 46.43	8
23	7 43 48.0	Weisse III, 474	3 25 58.85	13 47 40.48	12
25	7 44 14.1	(° 1)	3 27 16.27	13 54 47.15	6
26	9 23 51.1	940, Rumker	3 29 58.68	14 9 31.00	10
March 4	9 18 23.2	Weisse III, 774	3 31 28.56	14 17 22.89	6
5	8 51 31.9	Weisse III, 774	3 40 5.53	15 1 7.90	4
10	8 19 56.9	Weisse III, 774	3 41 29.58	15 7 56.36	3
11	7 58 10.5	(° 2)			

MEAN PLACES, 1850.0, OF STARS COMPARED WITH ASTRÆ.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Weisse II, 880	8.5	2 50 18.80	Rumker Catalogue	+ 9 35 58.41	Y. 2, 54.
Weisse II, 893	8.5	2 51 12.21	Rumker Catalogue	9 36 27.78	Y. 2, 54.
Weisse III, 114	9	3 6 43.33	Weisse Catalogue	11 52 15.43	Y. 2, 54, 55.
Weisse III, 172	8	3 10 0.68	Rumker Catalogue	12 16 17.76	Y. 3, 55.
Weisse III, 205	8	3 11 35.88	Rumker Catalogue	12 49 44.60	Y. 3, 55, 56.
Weisse III, 306	9	3 17 24.46	Weisse Catalogue	13 5 20.08	Y. 2, 55, 56.
Weisse III, 447	8	3 25 1.97	Rumker Catalogue	13 16 22.06	Y. 2, 55.
Weisse III, 474	9	3 26 13.26	Rumker Catalogue	13 40 4.82	Y. 2, 55.
(° 1)	9	3 28 6.79	Washington Equatorial	13 57 17.85	Y. 2, 56.
940, Rumker	9	3 33 48.83	Rumker Catalogue	14 18 25.54	Y. 2, M. 2, 55, 57.
Weisse III, 774	9	3 40 26.23	Weisse Catalogue	15 7 15.24	Y. 2, 55.
(° 2)	9	3 47	Weisse Catalogue	+ 15	

† In the columns of authority, Y. indicates determinations from observations by Professor Yarnall, with the Mural of the Observatory. The first numeral indicates the number of observations, and then follows the years in which they were made. In like manner, M. and L. indicate, respectively, similar observations with the Transit, made by Professors Major and Lawrence.

APPARENT PLACES OF MARS.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	° ′ ″		h. m. s.	° ′ ″	
January 5	9 0 22.2	Bessel's Zones, 523, 15	5 15 35.34	+ 26 24 57.23	12
	9 23 28.5	Bessel's Zone, 523	5 15 34.04	26 24 50.67	10
9	8 36 50.0	Bessel's Zone, 523	5 11 48.65	26 20 55.47	7
	8 43 25.7	Bessel's Zone, 523	5 11 47.31	26 20 53.33	7
12	8 11 28.7	Bessel's Zones, 396, 127	5 9 33.75	26 17 37.51	7
	8 13 3.5	Bessel's Zone, 396	5 9 33.82	26 17 38.86	6
14	8 49 17.2	Bessel's Zone, 396	5 8 21.70	26 15 29.85	2
	8 57 5.7	Bessel's Zone, 396	5 8 20.96	26 15 32.13	2
22	8 4 45.3	Bessel's Zone, 405, 6	5 6 3.90	26 8 10.64	11
	8 9 59.9	Bessel's Zone, 405	5 6 4.15	26 8 9.96	10
29	6 38 26.6	Bessel's Zone, 405	5 7 2.28	26 3 53.90	3
	6 44 26.4	Bessel's Zone, 405	5 7 1.68	+ 26 3 56.41	3

MEAN PLACES, 1850.0, OF STARS COMPARED WITH MARS.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Bessel's Zones, 523, 15	8.5	5 17 47.92	L.	+ 26 26 53.86	Y. 10, 55.
Bessel's Zones, 396, 127	8	5 3 4.64	L.	26 16 19.81	Y. 12, 55.
Bessel's Zones, 405, 6	9	5 10 29.37	L.	+ 26 5 49.14	Y. 11, 55.

APPARENT PLACES OF HEBE.

MEAN TIME—WASHINGTON.			COMPARISON STAR.	α	δ	No. of comp.
1850.		h. m. s.		h. m. s.	° ′ ″	
February	16	11 59 30.5	Weisse XIII, 458	13 28 28.42	+ 5 45 48.38	4
	26	12 5 40.8	Weisse XIII, 413	13 26 33.46	7 9 52.97	5
			Weisse XIII, 472	13 26 33.42	7 9 54.73	5
March	4	11 33 1.8	Weisse XIII, 365	13 24 17.20	8 5 0.04	11
		11 53 3.6	Weisse XIII, 370	13 24 16.38	8 5 8.86	7
	8	11 25 27.4	Weisse XIII, 392	13 22 18.66	8 43 5.10	9
	10	10 11 18.7	Weisse XIII, 331	13 21 13.17	9 1 57.85	12
	11	10 1 8.0	Weisse XIII, 331	13 20 38.40	9 11 32.64	10
		10 26 44.4	Weisse XIII, 331	13 20 37.65	9 11 43.74	6
	19	12 9 30.2	Weisse XIII, 208	13 15 13.35	10 29 25.76	7
	28	12 15 10.8	Weisse XIII, 104	13 8 7.90	11 51 15.80	20
	31	10 55 22.8	Weisse XIII, 104	13 5 39.18	12 15 57.57	17
		11 45 40.3	Weisse XIII, 69	13 5 37.81	12 16 14.59	7
April	2	10 46 7.0	Weisse XIII, 69	13 3 57.12	12 31 57.58	18
	4	11 54 10.6	Weisse XII, 1054	13 2 12.24	12 47 40.67	15
	6	10 26 40.6	Weisse XII, 1047	13 0 32.27	13 1 53.02	14
	13	9 55 57.1	Weisse XII, 929	12 54 36.56	13 46 43.28	14
	14	9 56 1.6	Weisse XII, 929	12 53 47.30	13 52 18.46	10
	15	10 15 1.7	Weisse XII, 929	12 52 57.71	13 57 42.10	12
		10 59 51.6	Weisse XII, 929	12 52 56.11	13 57 50.39	5
		11 1 18.8	Weisse XII, 933	12 52 56.28	13 57 49.52	4
	17	9 11 18.9	Weisse XII, 929	12 51 24.00	14 7 25.37	8
			Weisse XII, 933	12 51 24.25	14 7 24.23	8
	29	10 38 54.2	Weisse XII, 706	12 42 47.94	14 47 33.95	13
		10 20 57.4	4301, B. A. Catalogue	12 42 48.82	14 47 34.91	7
	30	10 35 29.5	Weisse XII, 706	12 42 11.82	14 49 20.35	7
			4301, B. A. Catalogue	12 42 12.04	14 49 18.02	7
May	1	10 30 32.9	Weisse XII, 706	12 41 36.90	14 50 49.90	12
	9	9 17 58.6	4301, B. A. Catalogue	12 37 38.51	14 54 57.08	6
	11	9 26 27.8	Weisse XII, 580	12 36 50.12	14 53 42.28	7
	12	8 38 1.9	Weisse XII, 580	12 36 29.19	14 52 54.38	10
	16	9 7 42.7	Weisse XII, 580	12 35 15.15	14 47 16.18	4
	18	10 7 26.5	Weisse XII, 580	12 34 45.20	14 43 9.04	10
	20	8 30 20.3	Weisse XII, 519	12 34 21.62	14 38 29.30	5
	21	10 36 41.2	Weisse XII, 519	12 34 11.07	14 35 37.14	7
	22	9 12 1.3	Weisse XII, 519	12 34 2.57	14 33 9.44	6
	23	9 9 13.4	Weisse XII, 519	12 33 56.55	14 29 57.90	5
	26	9 20 35.2	Weisse XII, 519	12 33 42.17	14 19 56.49	8
	27	9 43 22.8	Weisse XII, 519	12 33 40.06	14 16 13.86	5
June	5	8 52 10.8	Weisse XII, 553	12 34 20.61	+ 13 36 39.34	6

MEAN PLACES, 1850.0, OF STARS COMPARED WITH HEBE.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Weisse XIII, 458	9	13 27 11.43	Weisse Catalogue	+ 5 40 58.64	Y. 2, 55.
Weisse XIII, 413	9	13 24 45.86	Weisse Catalogue	7 7 26.81	Y. 2, 55.
Weisse XIII, 472	8	13 27 43.33	Weisse Catalogue	7 16 45.39	Y. 2, 57.
Weisse XIII, 365	6.5	13 22 28.86	Santini Catalogue	7 57 19.47	Y. 2, M. 1, 55, 57.
Weisse XIII, 370	8	13 22 51.76	Weisse Catalogue	8 11 30.02	Y. 2, 56, 57.
Weisse XIII, 392	9	13 23 54.09	Weisse Catalogue	8 49 49.84	Y. 1, 57.
Weisse XIII, 331	8	13 20 39.53	Weisse Catalogue	9 8 13.15	Y. 3, 55, 57.
Weisse XIII, 208	9	13 12 36.79	Weisse Catalogue	10 47 25.77	Y. 3, M. 1, 55, 57.
Weisse XIII, 104	7	13 7 2.25	Weisse Catalogue	12 7 46.95	Y. 2, 55.
Weisse XIII, 69	7	13 5 5.40	Weisse Catalogue	12 21 19.94	Y. 2, M. 3, 55, 57.
Weisse XII, 1054	9	13 0 48.77	Weisse Catalogue	12 52 14.27	Y. 2, 55.
Weisse XII, 1047	9	13 0 36.35	Weisse Catalogue	12 59 50.84	Y. 2, 55.
Weisse XII, 929	8	12 53 55.76	Weisse Catalogue	13 58 38.21	Y. 6, 55, 56.
Weisse XII, 933	9	12 54 13.46	Weisse Catalogue	13 58 58.57	Y. 2, 55, 56.
Weisse XII, 706	9	12 41 18.65	Weisse Catalogue	14 51 20.84	Y. 2, M. 1, 55, 57.
4301, B. A. Catalogue	6	12 41 23.16	B. A. Catalogue	14 56 32.17	Y. 2, M. 2, 56, 57.
Weisse XII, 580	8.5	12 34 30.64	Weisse Catalogue	14 58 58.28	Y. 2, 57.
Weisse XII, 519	8	12 31 2.15	Weisse Catalogue	14 37 57.56	Y. 2, M. 1, 55, 57.
Weisse XII, 553	8	12 33 10.47	Weisse Catalogue	+ 13 32 21.94	Weisse Catalogue.

APPARENT PLACES OF IRIS.

MEAN TIME—WASHINGTON.			COMPARISON STAR.	α	δ	No. of comp.
1850.		h. m. s.		h. m. s.	° ′ ″	
March	31	13 18 38.1	Argelander's Zones, 210, 43	16 4 59.30	— 24 41 2.04	12
April	13	13 4 6.7	5345, B. A. Catalogue	16 0 21.73	24 27 38.99	11
	14	12 18 8.8	5345, B. A. Catalogue	15 59 50.80	24 26 56.78	10
	15	12 5 25.0	5345, B. A. Catalogue	15 59 17.16	24 24 11.15	8
	29	12 36 54.4	5254, B. A. Catalogue	15 49 1.18	23 47 17.47	10
May	1	11 39 42.0	5254, B. A. Catalogue	15 47 17.10	23 40 31.62	16
	9	12 0 15.6	5220, B. A. Catalogue	15 39 40.87	23 8 38.98	17
	12	10 52 55.9	Argelander's Zones, 387, 6	15 36 43.95	22 55 30.51	18
	18	11 30 37.7	Argelander's Zones, 209, 61	15 30 38.85	22 26 48.95	10
			Argelander's Zones, 209, 62	15 30 38.96	22 26 49.21	10
			Argelander's Zones, 209, 63	15 30 38.58	22 26 48.71	10
	20	11 14 15.4	Argelander's Zones, 209, 62	15 28 39.17	22 16 53.67	11
	21	11 41 52.5	(° 5)	15 27 37.55	22 11 44.57	10
	23	12 2 12.5	(° 6)	15 25 38.63	22 1 27.53	6
	26	11 19 39.7	Argelander's Zones, 209, 54	15 22 46.32	21 46 8.09	23
	27	11 20 39.8	Argelander's Zones, 209, 54	15 21 48.70	21 40 56.05	14
June	3	12 1 33.6	Argelander's Zones, 209, 48	15 15 30.10	21 4 33.64	10
	4	11 45 23.5	Argelander's Zones, 209, 48	15 14 40.63	20 59 32.04	6
	11	10 44 27.7	Argelander's Zones, 208, 52	15 9 23.05	20 25 19.52	11
	12	11 29 40.9	Argelander's Zones, 208, 52	15 8 41.08	20 20 27.10	11
	13	11 26 16.8	Argelander's Zones, 208, 52	15 8 1.92	20 15 52.91	6
	24	11 44 37.2	4995, B. A. Catalogue	15 2 23.78	19 30 36.24	7
	25	10 13 3.9	4995, B. A. Catalogue	15 2 3.32	19 27 18.74	6
August	12	9 2 39.1	Argelander's Zones, 303, 47	15 12 51.21	18 45 59.20	6
	25	8 57 5.8	5109, B. A. Catalogue	15 23 48.55	19 9 41.46	3
	26	8 50 13.0	5109, B. A. Catalogue	15 24 45.31	19 11 58.44	4
	27	9 5 14.9	5109, B. A. Catalogue	15 25 44.36	19 14 13.42	4
	28	8 32 41.8	5109, B. A. Catalogue	15 26 41.82	— 19 16 28.23	4

MEAN PLACES FOR 1850.0, OF STARS COMPARED WITH IRIS.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Argelander's Zones, 210, 43	8.5	16 6 43.47	Argelander's Zones	— 24 44 7.10	Y. 2, 57.
5343, B. A. Catalogue	7	15 58 52.26	Argelander's Zones	24 3 15.17	Y. 3, M. 2, 56, 57.
5254, B. A. Catalogue	6.5	15 45 0.87	Argelander's Zones	24 31 35.41	Y. 4, M. 1, 57.
5220, B. A. Catalogue	7	15 39 33.66	Argelander's Zones	23 21 57.35	Y. 3, 57.
Argelander's Zones, 387, 6	8.5	15 36 37.74	Argelander's Zones	23 1 52.81	Y. 1, 57.
Argelander's Zones, 209, 61	6	15 28 59.52	Argelander's Zones	22 38 23.30	Y. 1, M. 1, 57.
Argelander's Zones, 209, 62	7.5	15 29 56.03	Argelander's Zones	22 33 11.01	Y. 1, 57.
Argelander's Zones, 209, 63	7	15 30 32.27	Argelander's Zones	22 39 17.94	Y. 3, M. 1, 57.
(°5)	9	15 28 24.00	Washington Equatorial	22 24 27.41	Y. 2, 57.
(°6)	9.5	15 28 05.00	Washington Equatorial	22 6 4.82	Y. 2, 57.
Argelander's Zones, 209, 54	7.5	15 23 26.65	Argelander's Zones	21 27 4.54	Y. 3, 57.
Argelander's Zones, 209, 48	7.5	15 17 25.10	Argelander's Zones	20 50 55.00	Y. 4, M. 2, 57.
Argelander's Zones, 208, 52	7.5	15 10 5.32	Argelander's Zones	20 33 4.97	Y. 3, M. 1, 57.
4995, B. A. Catalogue	5.5	15 3 40.86	B. A. Catalogue	19 13 12.66	Y. 3, M. 1, 57.
Argelander's Zones, 303, 47	8	15 10 54.62	Argelander's Zones	18 37 4.01	Y. 3, 57.
5109, B. A. Catalogue	6.5	15 24 0.07	B. A. Catalogue	— 19 9 18.97	Y. 3, 57.

APPARENT PLACES OF HYGEA.

MEAN TIME—WASHINGTON.			COMPARISON STAR.	α	δ	No. of Comp.
1850.		h. m. s.		h. m. s.	° ′ ″	
May	20	14 22 28.5	(°7)	19 44 50.94	— 22 8 11.36	7
	21	14 21 59.9	(°7)	19 44 49.82	22 7 26.82	5
	26	12 46 12.6	(°7)	19 44 19.94	22 4 27.44	10
	27	12 38 56.2	(°7)	19 44 9.44	22 3 59.87	8
June	11	12 5 6.4	37507, Lalande	19 38 41.32	22 2 33.30	14
	12	12 19 6.2	37507, Lalande	19 38 8.34	22 2 45.08	10
	13	12 4 29.6	37507, Lalande	19 37 34.98	22 2 58.32	10
	24	12 50 50.7	37221, Lalande	19 30 10.18	22 7 10.95	9
August	7	10 58 17.9	6507, B. A. Catalogue	18 56 43.68	22 15 40.82	14
	9	10 50 51.6	6507, B. A. Catalogue	18 55 46.57	22 15 7.20	11
	11	11 19 12.8	6507, B. A. Catalogue	18 54 54.12	22 14 14.43	12
	12	10 51 43.4	6507, B. A. Catalogue	18 54 30.39	22 13 53.29	10
	15	10 29 26.1	6507, B. A. Catalogue	18 53 27.08	22 12 31.56	5
	16	10 33 23.2	6507, B. A. Catalogue	18 53 8.57	22 12 2.05	8
	27	9 51 19.9	(°8)	18 51 21.86	22 5 26.14	10
	28	9 41 10.3	Argelander's Zones, 224, 110	18 51 20.42	22 4 43.47	15
	29	8 51 45.3	Argelander's Zones, 224, 110	18 51 21.70	22 4 0.23	14
	31	9 51 3.9	Argelander's Zones, 224, 110	18 51 25.63	22 2 26.70	10
September	2	9 25 45.5	Argelander's Zones, 224, 110	18 51 36.30	22 0 51.73	12
	3	9 28 18.3	Argelander's Zones, 224, 110	18 51 43.81	22 0 1.68	10
	4	8 58 59.6	Argelander's Zones, 224, 110	18 51 52.48	21 59 12.57	5
	6	9 25 2.1	Argelander's Zones, 224, 110	18 52 24.24	21 57 26.04	7
	10	9 58 54.8	6507, B. A. Catalogue	18 53 15.32	21 53 42.87	7
	11	8 6 31.1	6507, B. A. Catalogue	18 53 32.36	21 52 48.68	5
	12	8 46 2.6	6507, B. A. Catalogue	18 53 52.71	21 51 44.83	10
	13	8 39 17.7	6507, B. A. Catalogue	18 54 13.74	21 50 45.49	10
	16	9 17 6.9	6507, B. A. Catalogue	18 55 25.79	21 47 30.48	15
	17	8 11 18.7	6507, B. A. Catalogue	18 55 50.46	21 46 24.01	9
	21	8 53 7.7	Argelander's Zones, 224, 121	18 57 48.81	21 41 34.31	5
	22	8 1 22.3	Argelander's Zones, 224, 121	18 58 19.82	21 40 23.17	10
	23	8 47 11.0	Argelander's Zones, 224, 121	18 58 54.32	21 39 4.62	10
	30	8 12 19.1	6548, B. A. Catalogue	19 3 18.30	21 29 18.30	6
October	1	7 47 47.3	6548, B. A. Catalogue	19 4 59.56	21 27 48.71	8
	2	7 50 21.9	6548, B. A. Catalogue	19 4 42.93	21 26 17.14	6
	3	8 28 12.1	1351, Madrass	19 5 28.72	21 24 42.48	8
	4	7 41 32.1	1351, Madrass	19 6 12.46	21 23 6.95	10
	6	7 35 39.4	1351, Madrass	19 7 45.47	21 19 46.04	14
	7	7 16 35.2	1351, Madrass	19 8 33.06	21 18 4.24	9
	8	7 26 48.5	1351, Madrass	19 9 22.53	21 16 19.05	9
	9	8 50 52.6	1351, Madrass	19 10 13.78	21 14 26.39	4
	14	9 8 26.2	1719, G. 12, Y. C.	19 14 40.20	21 4 46.68	5
	15	7 27 38.4	1719, G. 12, Y. C.	19 15 31.49	21 2 55.47	4
	16	6 37 12.9	1719, G. 12, Y. C.	19 16 25.64	21 0 55.55	2
	22	6 54 46.0	36878, Lalande	19 22 19.46	20 47 30.59	9
	29	7 33 52.5	Argelander's Zones, 310, 173	19 29 47.28	20 29 50.57	6
November	1	6 52 49.8	Argelander's Zones, 310, 173	19 33 5.38	20 21 35.96	3
	2	6 58 39.2	6760, B. A. Catalogue	19 34 13.41	20 18 41.22	9
	4	6 34 47.4	6760, B. A. Catalogue	19 36 30.04	20 12 49.93	10
	5	6 33 19.2	6760, B. A. Catalogue	19 37 40.37	20 9 50.04	10
	9	6 38 5.7	6760, B. A. Catalogue	19 42 24.42	19 57 13.20	4
	13	6 24 42.3	37873, Lalande	19 47 16.84	19 43 44.75	10
	14	6 17 38.4	37873, Lalande	19 48 30.67	19 40 14.90	5
	21	7 1 22.8	38290, Lalande	19 57 25.48	19 14 3.76	9
	24	6 18 13.7	6903, B. A. Catalogue	20 1 17.54	— 19 2 12.65	4

MEAN PLACES, 1850.0, OF STARS COMPARED WITH HYGEA.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
(°7)	9.5	19 45 41.87	Washington Equatorial . .	— 22 7 38.16	Y. 2, 55, 56.
37507, Lalande	8.9	19 37 36.95	Argelander's Zones . . .	21 52 56.52	Y. 3, M. 2, 55, 56, 57, Arg. Z.
37221, Lalande	8	19 30 59.75	Lalande, Catalogue . . .	22 24 0.58	Y. 4, 54—57.
6507, B. A. Catalogue . .	4	18 55 41.41	Rumker, Catalogue . . .	21 57 23.02	Y. 3, M. 2, 55, 57, et Rumker.
(°8)	9.5	18 52 9.22	Washington Equatorial . .	22 2 52.08	Y. 2, 55, 56.
Argelander's Zones, 224, 110	8.5	18 50 36.69	Argelander's Zones . . .	22 1 38.16	Y. 6, 55, 56.
Argelander's Zones, 224, 121	9	18 58 4.44	Argelander's Zones . . .	21 39 1.58	Y. 3, 55, et Arg.
6548, B. A. Catalogue . .	4	19 0 50.52	Argelander's Zones . . .	21 15 24.13	Y. 3, M. 2. 54, 56. et Arg.
Madrass, 1351	8.5	19 8 20.18	Argelander's Zones . . .	21 19 56.53	Y. 3, M. 2, 55, 57, et Arg.
1719, G. 12, Y.	8	19 13 47.50	G. 12, Y. Catalogue . .	20 55 5.66	Y. 3, 55, 57.
36878, Lalande	9	19 23 15.71	Argelander's Zones . . .	20 42 43.34	Y. 3, 56, et Arg. Z.
Madrass, 1417, (not used) .	8	19 31 19.64	Argelander's Zones . . .	20 53 10.99	Y. 3, 56, et Arg. Z.
Argelander's Zones, 310, 173	9	19 29 42.12	Argelander's Zones . . .	20 38 23.58	Y. 2, 55, 56, et Arg. Z.
6760, B. A. Catalogue . .	5	19 37 36.50	Argelander's Zones . . .	20 7 0.71	Y. 3, M. 3, 54, 57, et Arg. Z.
37873, Lalande	8	19 46 39.61	Argelander's Zones . . .	19 40 53.16	Y. 2, M. 2, 55, 56, Arg. reject.
38164, Lalande, (not used) .	8	19 53 18.55	Argelander's Zones . . .	19 30 32.33	Argelander's Zones.
38290, Lalande	8.5	19 56 21.21	Argelander's Zones . . .	19 11 28.24	Y. 4, M. 2, 54—56, et Arg. Z.
6903, B. A. Catalogue . .	7	19 59 32.66	B. A. Catalogue	19 13 59.89	Y. 7, M. 2, 54, 56.
(°6) 1857	12	19 19 2.99	Washington Equatorial . .	— 21 0 7.52	Washington Equatorial.

APPARENT PLACES OF THE STAR ♄.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of Comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
October 16	6 52 36.8	1719, G. 12 Y.	19 17 41.96	— 20 44 54.84	2
19	7 30 33.2	(°6,) 1857	19 17 42.94	20 44 57.03	5
22	6 35 33.1	36878, Lalande	19 17 43.53	— 20 44 56.02	1

APPARENT PLACES OF COMET I, 1850.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
June 2	10 22 13.1	(° 9)	17 18 5.03	+ 73 46 44.59	12
3	10 18 10.4	2418, Groombridge	17 10 38.26	73 35 58.68	5
		2420, Groombridge	17 10 38.66	73 36 5.36	5
4	9 59 45.4	5769, B. A. Catalogue	17 3 12.83	73 23 19.82	10
		2418, Groombridge	17 3 12.47	73 23 22.05	10
5	10 14 7.1	(° 10)	16 55 31.10	73 8 24.16	9
		5769, B. A. Catalogue	16 55 32.64	73 8 25.66	9
9	9 15 53.8	2356, Groombridge	16 25 14.15	71 46 50.06	4
10	10 37 19.4	Argelander's Zones, 115, 164	16 17 15.88	71 18 23.02	11
		Argelander's Zones, 115, 165	16 17 15.54	71 18 28.85	11
11	9 37 19.3	2319, Groombridge	16 10 7.72	70 49 44.52	6
		Argelander's Zones, 115, 156	16 10 7.77	70 49 46.06	6
12	10 2 8.7	(° 21)	16 2 40.06	70 15 29.96	4
		(° 22)	16 2 40.00	70 15 23.42	4
13	10 7 37.9	Argelander's Zones, 114, 4	15 55 29.20	69 40 38.53	8
		Argelander's Zones, 114, 5	15 55 28.97	69 40 41.41	8
19	9 5 9.1	(° 12)	15 16 33.28	64 58 14.28	7
24	9 11 42.2	Argelander's Zones, 7, 26	14 49 34.19	59 11 50.99	4
29	12 17 34.8	(° 14)	14 27 6.52	51 11 25.07	10
30	12 2 25.0	(° 15)	14 23 17.48	49 21 37.12	7
		(° 16)	14 23 19.31	49 21 38.96	7
July 1	11 21 10.1	(° 17)	14 19 44.89	47 28 30.38	10
4	10 21 15.6	(° 19)	14 9 46.60	41 8 51.56	7
7	9 36 18.7	(° 20)	14 0 57.22	33 56 13.30	8
10	10 50 47.2	4529, Rumker	13 52 57.90	25 44 14.04	6
11	11 9 56.6	4551, Rumker	13 50 31.75	22 52 45.82	6
14	10 7 49.1	Weisse XIII, 737	13 43 56.41	+ 14 18 56.54	10
20	9 13 3.7	4547, B. A. Catalogue	13 32 41.25	— 2 43 17.64	8

MEAN PLACES, 1850.0, OF STARS COMPARED WITH COMET I, 1850.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
(° 9)	9.5	17 17 42.89	Washington West Transit	+ 73 35 52.72	M. 2, 50.
2418, Groombridge	8	17 3 33.99	Ast. Nach., 798	73 24 11.73	M. 2, Y. 5, 50, 56.
2420, Groombridge	8	17 4 29.67	West Transit	73 31 10.47	M. 2, Y. 2, 50, 55.
5769, B. A. Catalogue	7	16 59 16.84	Ast. Nach., 798	73 21 10.88	M. 2, Y. 2, 50, 57.
(° 10)	9.5	16 56 37.00	Ast. Nach., 798	73 9 5 84	Y. 3, 55.
2356, Groombridge	7	16 26 59.08	Ast. Nach., 798	71 43 5.56	Y. 5, 55, 57.
Argelander's Zones, 115, 164	8.5	16 15 46.42	Ast. Nach., 798	71 12 17.36	Y. 3, 55, 56.
Argelander's Zones, 115, 165	8.5	16 15 55.73	Ast. Nach., 798	71 18 34.33	Y. 3, 55, 57.
2319, Groombridge	7.5	16 5 22.97	Radcliffe Observations	70 39 44.73	Y. 2, 56.
Argelander's Zones, 115, 156	9	16 8 20.58	Washington Equatorial	70 43 25.87	Y. 2, 57.
†(° 21)	9	15 58 40.68	West Transit	70 7 20.67	M. 1, 50.
†(° 22)	9	15 59 42.76	West Transit and Arg. Zones.	70 8 26.94	Argelander's Zones.
(° 11)	9.5	16 3 11.60	Washington Equatorial	70 17 54.18	Washington Equatorial.
Argelander's Zones, 114, 4	9	15 59 32.56	West Transit	69 37 49.67	M. 2, Y. 2, 50, 57.
Argelander's Zones, 114, 5	9	15 59 53.92	West Transit	69 38 35.28	M. 1, Y. 1, 50, 57.
(° 12)	10	15 18 14.72	Ast. Nachrichten, 798	64 54 17.78	M. 2, 50.
Argelander's Zones, 7, 26	9	14 53 29.29	Ast. Nach. and Transit	59 7 6.53	M. 1, 50, and Arg. Zones.
(° 13) not used	9	14 53 42.58	Ast. Nach., 798	59 7 32.90	A. N., 798.
(° 44)	9	14 26 42.79	Ast. Nach., 798	50 59 6.74	Y. 2, 57, and A. N.
(° 15)	9	14 22 15.21	Ast. Nach., 798	49 20 28.70	A. N., 798.
(° 16)	9	14 24 17.50	Ast. Nach., 798	49 12 38.98	Y. 1, 57, A. N.
(° 17)	8.5	14 18 33.74	Ast. Nach., 798	47 27 3.76	Y. 3, 57, A. N.
(° 18) not used	9	14 14 7.22	Ast. Nach., 798	43 30 27.30	Ast. Nach., 798.
(° 19)	9	14 10 21.35	Ast. Nach., 798	41 6 0.81	Y. 3, 57, A. N.
(° 20)	9	14 1 8.21	Ast. Nach., 798	34 7 4.06	Y. 3, 57, A. N.
4529, Rumker	6	13 50 33.85	Ast. Nach., 798	25 44 3.09	Y. 4, 56, 57, A. N.
4551, Rumker	8	13 54 2.61	Ast. Nach., 798	22 42 20.96	Y. 3, 57, A. N.
Weisse XIII, 737	8.5	13 42 46.84	Ast. Nach., 798	+ 14 14 1.48	Y. 4, 55, 57, A. N.
4547, B. A. Catologue	7	13 30 1.89	Ast. Nach., 798	— 2 28 8.03	Y. 2, 57, A. N.

† There are stars in A. Z, 114, 1 and 114, 2, of the same ascension and nearly the same declination.

APPARENT PLACES OF PARTHENOPE.

MEAN TIME—WASHINGTON.		COMPARISON STAR	α	δ	No. of Comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
July 11	10 2 52.3	Weisse XIV, 1016	14 53 30.16	— 11 13 19.32	3
14	8 49 47.3	Weisse XIV, 1016	14 54 35.50	11 18 6.65	8
19	9 18 33.1	Weisse XIV, 1072	14 56 58.67	11 43 39.46	6
August 11	9 21 29.6	Weisse XV, 265	15 15 24.37	14 2 50.13	9
		Weisse XV, 281	15 15 24.69	14 2 49.14	9
12	8 18 11.2	Weisse XV, 249	15 16 25.30	14 9 8.78	7
14	8 45 52.4	Weisse XV, 400	15 18 35.32	14 22 32.93	5
15	8 26 59.3	Weisse XV, 400	15 19 41.38	14 29 6.77	8
16	8 25 21.6	Weisse XV, 400	15 20 48.70	14 35 51.19	10
23	8 39 10.6	5184, B. A. Catalogue	15 29 11.45	15 23 14.59	3
25	7 2 1.5	5184, B. A. Catalogue	15 31 41.75	15 36 34.95	9
26	8 14 41.4	5184, B. A. Catalogue	15 33 0.19	15 43 24.64	5
27	6 56 47.1	(° 23)	15 34 17.70	15 50 8.99	8
28	7 50 16.0	(° 23)	15 35 36.97	15 56 53.77	9
29	7 44 37.2	(° 24)	15 36 57.09	16 3 40.01	13
30	8 12 21.3	(° 24)	15 38 20.48	16 10 28.42	3
31	7 48 39.2	28697, Lalande	15 39 41.02	16 17 11.50	8
September 2	8 36 38.2	5257, B. A. Catalogue	15 42 31.92	16 30 45.31	4
3	7 51 24.8	5257, B. A. Catalogue	15 43 54.29	16 37 19.76	12
6	8 18 30.6	(° 25)	15 48 16.39	16 57 34.23	5
10	7 39 52.6	29306, Lalande	15 54 13.35	17 23 46.56	4
11	7 23 35.7	29306, Lalande	15 55 44.00	17 30 12.70	8
12	7 45 57.0	29306, Lalande	15 57 18.26	17 36 46.81	5
13	7 41 1.4	29306, Lalande	15 58 51.63	17 43 10.39	5
17	7 22 26.5	5408, B. A. Catalogue	16 5 12.25	18 8 36.85	12
21	6 56 14.9	29696, Lalande	16 11 43.73	18 33 14.25	7
22	7 7 9.5	29696, Lalande	16 13 24.60	18 39 18.42	8
23	6 59 6.7	29696, Lalande	16 15 4.91	18 45 20.34	5
October 1	6 57 22.6	5580, B. A. Catalogue	16 28 57.09	19 31 34.69	5
2	6 46 17.7	5580, B. A. Catalogue	16 30 43.57	19 37 0.89	6
3	6 58 18.2	5580, B. A. Catalogue	16 32 32.49	19 42 29.28	16
4	6 49 55.9	5580, B. A. Catalogue	16 34 19.98	19 47 49.35	8
5	6 39 18.6	30479, Lalande	16 36 7.09	19 53 7.80	4
6	6 48 38.2	30479, Lalande	16 37 57.48	19 58 21.45	12
7	6 34 54.7	30479, Lalande	16 39 46.26	20 3 24.55	7
8	6 41 25.0	5663, B. A. Catalogue	16 41 38.80	20 8 34.04	5
9	6 31 36.2	5663, B. A. Catalogue	16 43 29.56	— 20 13 31.45	4

MEAN PLACES FOR 1850.0 OF STARS COMPARED WITH PARTHENOPE.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Weisse XIV, 1016	9	14 54 9.66	Weisse Catalogue	— 11 8 46.44	Y. 3, 55, 57.
Weisse XIV, 1072	9	14 56 45.57	Weisse Catalogue	11 48 22.05	Y. 2, 55, 57.
Weisse XV, 265	8	15 15 10.31	Washington Transit	13 48 34.75	Y. 2, 55, 57.
Weisse XV, 281	8	15 15 45.62	Washington Transit	13 46 18.16	Y. 3, 55, 57.
Weisse XV, 249	9	15 14 16.63	Weisse Catalogue	14 20 13.74	Y. 3, 55, 57.
Weisse XV, 400	8	15 21 35.10	Washington Transit	14 17 35.86	Y. 3, 55, 57.
5184, B. A. Catalogue	7	15 34 20.39	Madrass Catalogue	15 31 42.43	Y. 3.
(° 23)	10	15 33 34.46	Washington Equatorial	15 38 17.20	Washington Equatorial.
(° 24)	9	15 36 1.26	Washington Equatorial	15 55 19.82	Washington Equatorial.
28697, Lalande	7	15 37 20.27	Argelander's Zones	16 28 33.13	Y. 3, 56.
5257, B. A. Catalogue	5	15 45 17.43	Argelander's Zones & Rumker	16 17 5.05	Argelander's Zones & Rumker.
(° 25)	9	15 46 55.17	Washington Equatorial	16 48 35.65	Y. 1, 57.
29306, Lalande	8	15 58 38.19	Lalande, Catalogue	17 31 36.01	Y. 3, 56, 57.
5408, B. A. Catalogue	7	16 6 0.40	B. A. Catalogue	18 8 44.58	Y. 4, 56, 57.
29696, Lalande	7	16 10 33.41	Argelander's Zones	18 27 33.26	Y. 4, 55, 57.
5580, B. A. Catalogue	7	16 33 5.04	Argelander's Zones	19 37 54.36	Y. 5, 55, 57.
30479, Lalande	8	16 38 6.06	Argelander's Zones	19 49 14.30	Y. 5, 55, 57.
5663, B. A. Catalogue	6	16 44 34.11	B. A. Catalogue	20 9 34.27	Y. 2, M. 3, 55, 57.
5467, B. A. Catalogue	5	16 15 19.88	Argelander's Zones	— 19 40 47.87	Y. 5, 55, 57.

APPARENT PLACES OF FLORA.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
August 28	10 35 56.9	Weisse O, 641	0 38 31.76	— 6 40 6.85	10
September 11	9 52 4.0	Weisse O, 560	0 32 8.85	8 37 29.14	9
17	12 15 17.6	Weisse O, 444	0 27 38.24	9 30 5.20	8
20	10 9 0.0	Weisse O, 421	0 25 23.52	9 54 41.24	5
21	11 17 53.6	Weisse O, 421	0 24 31.57	10 3 9.12	9
October 1	9 49 17.7	Weisse O, 239	0 15 56.05	11 13 51.06	10
3	9 22 53.5	Weisse O, 239	0 14 13.55	11 25 10.91	6
4	8 49 11.1	Weisse O, 239	0 13 23.85	11 30 19.02	9
6	9 17 49.9	Weisse O, 189	0 11 44.91	11 39 55.80	13
7	8 17 54.7	Weisse O, 189	0 10 56.06	11 44 18.91	11
8	8 16 59.1	Weisse O, 189	0 10 8.41	11 48 25.04	10
9	8 32 38.9	Weisse O, 189	0 9 21.12	11 52 14.37	6
15	8 24 37.3	Weisse O, 102	0 5 7.40	12 7 57.26	14
16	8 14 3.5	Weisse O, 102	0 4 31.28	12 9 23.63	14
22	10 7 32.1	Weisse XXIII, 1242	0 1 22.42	12 10 55.05	9
29	10 28 9.8	Weisse XXIII, 1242	23 59 11.54	11 57 33.28	4
31	9 11 57.2	Weisse XXIII, 1227	23 58 52.61	11 51 5.49	14
November 1	9 2 13.4	Weisse XXIII, 1227	23 58 46.33	11 47 21.81	10
2	9 55 1.5	Weisse XXIII, 1208	23 58 42.43	11 43 9.61	6
4	9 34 0.4	Weisse XXIII, 1208	23 58 40.57	11 34 15.35	10
9	9 41 46.2	Weisse O, 13	23 59 12.01	11 6 56.05	8
13	8 56 27.2	Weisse XXIII, 1195	0 0 14.26	10 40 44.91	6
14	8 33 57.1	Weisse XXIII, 1195	0 0 34.95	10 33 38.80	6
18	8 39 20.7	Weisse O, 41	0 2 17.88	10 2 37.59	10
21	9 53 45.3	Weisse O, 28	0 3 56.49	9 36 32.03	3
30	9 7 26.7	Weisse O, 199	0 10 20.05	8 10 59.05	10
December 21	8 17 54.9	Weisse O, 601	0 33 5.20	— 4 1 39.29	12

MEAN PLACES FOR 1850.0 OF STARS COMPARED WITH FLORA.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Weisse O, 641	9	0 36 53.29	Weisse Catalogue	— 6 26 52.84	Y. 2, 1857.
Weisse O, 560	8	0 32 46.77	West Transit	8 28 38.24	Y. 3.
Weisse O, 444	9	0 26 12.34	Weisse Catalogue	9 32 48.90	Y. 2.
Weisse O, 421	9	0 25 0.03	West Transit	9 51 44.35	Y. 2.
Weisse O, 239	9	0 13 44.11	Weisse Catalogue	11 30 59.60	Y. 2.
Weisse O, 189	8	0 11 9.19	West Transit and Rumker	11 46 54.00	Y. 2.
Weisse O, 102	9	0 6 20.41	Weisse Catalogue	12 8 18.84	Y.
Weisse XXIII, 1242	9	0 0 8.24	Weisse Catalogue	11 57 51.46	Y. 2.
Weisse XXIII, 1227	9	23 59 42.73	Weisse Catalogue	11 52 5.06	Y. 2.
Weisse XXIII, 1208	8	23 58 36.48	Weisse Catalogue	11 36 49.14	Y. 2.
Weisse O, 13	8.5	0 1 50.55	Weisse Catalogue	11 1 21.54	Y. 3.
Weisse XXIII, 1195	8	23 57 49.58	Weisse Catalogue	10 27 0.44	Weisse Catalogue.
Weisse O, 41	9	0 2 49.32	Weisse Catalogue	10 7 32.39	Y. 2.
Weisse O, 28	9	0 2 23.07	West Transit	9 48 34.78	Y. 2.
Weisse O, 199	7	0 11 56.87	West Transit	8 3 7.90	Y. 2.
Weisse O, 601	9	0 34 29.09	Weisse Catalogue	— 3 52 27.47	Y. 2.

APPARENT PLACES OF COMET II, 1850.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
September 16	13 35 44.8	Bessel's Zones, 452, 77	7 45 21.43	+ 39 31 1.10	14
17	13 37 43.9	Bessel's Zones, 451, 60	7 57 29.50	+ 36 54 25.80	6
October 4	16 54 3.9	Weisse X, 224	10 10 55.50	— 4 41 45.28	5
		Weisse X, 229	10 10 55.86	4 41 42.47	5
6	16 59 3.0	(° 26)	10 21.2	7 48.7	12
7	17 42 46.8	153 Lamont's Zones	10 26 15.54	8 59 0.29	5
8	17 5 41.7	Weisse X, 538	10 31 12.80	10 15 5.06	4
		Weisse X, 548	10 31 12.66	10 15 3.50	4
9	17 7 27.8	(° 27)	10 36 3.11	11 24 42.85	3
12	17 18 52.1	Weisse X, 879	10 50 15.76	— 14 24 39.98	2

MEAN PLACES, 1850.0, OF STARS OBSERVED WITH COMET II, 1850.

STARS.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Bessel's Zones, 452, 77	7	7 45 47.77	Washington Transit	+ 39 40 31.06	Y. 2, 56, 57.
Bessel's Zones, 451, 60	8	7 58 0.67	Bessel's Zones	+ 36 40 12.72	Bessel's Zones.
Weisse X, 224	7	10 13 12.13	Washington Transit	— 4 37 45.86	Y. 3, 55, 56.
Weisse X, 229	7	10 13 34.90	Washington Transit	4 39 46.94	Y. 3, 55, 56.
(° 26)	9	10 20.9		7 40.0	
143, Lamont	8.5	10 26 50.63	Lamont's Zones	9 7 13.35	Lamont's Zones.
Weisse X, 548	9	10 29 57.84	Washington Transit	10 16 0.19	Y. 3, 55.
Weisse X, 548	9	10 30 18.04	Washington Transit	10 16 18.65	Y. 3, 55.
Weisse X, 27	9	10 33 31.16	Washington Equatorial	11 25 0.44	Y. 3, 56.
Weisse X, 879	9	10 48 2.96	Washington Transit	— 14 28 19.13	Y. 3, 55.

APPARENT PLACES OF VICTORIA.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
October 28	10 11 4.1	(° 28)	23 23 18.71	+ 6 35 54.73	10
29	8 44 58.7	1636, Santini	23 23 26.65	6 28 52.65	10
	9 16 40.4	(° 28)	23 23 27.09	6 28 45.99	4
31	7 39 36.4	1636, Santini	23 23 49.22	6 14 58.79	14
	10 13 16.7	1636, Santini	23 23 50.72	6 14 15.94	4
November 1	7 51 8.1	1636, Santini	23 24 3.55	6 8 11.38	19
2	8 37 34.6	1636, Santini	23 24 20.32	6 1 28.62	10
4	8 29 0.5	(° 29)	23 24 58.16	5 49 8.92	14
5	7 52 26.9	Weisse XXIII, 458	23 25 18.44	5 43 29.25	6
9	8 18 33.3	Weisse XXIII, 534	23 27 1.23	5 22 39.05	12
		Weisse XXIII, 602	23 27 1.72	5 22 39.08	12
10	7 46 4.1	Weisse XXIII, 534	23 27 30.47	5 18 8.31	9
		Weisse XXIII, 602	23 27 30.77	5 18 7.56	9
13	7 39 54.6	Weisse XXIII, 602	23 29 8.96	5 5 50.84	20
14	7 38 41.5	Weisse XXIII, 602	23 29 45.13	5 2 13.52	11
18	7 20 6.6	8233, B. A. Catalogue	23 32 22.99	4 50 5.83	20
21	8 40 47.0	8233, B. A. Catalogue	23 34 39.16	4 43 15.87	10
24	7 39 56.8	Weisse XXIII, 803	23 37 2.01	4 38 34.00	10
30	6 54 56.7	Weisse XXIII, 803	23 42 25.92	4 34 47.54	7
		Weisse XXIII, 934	23 42 26.41	4 34 49.12	7
December 8	6 43 54.7	Weisse XXIII, 1032	23 50 35.30	4 40 42.10	14
9	6 49 38.3	Weisse XXIII, 1032	23 51 41.51	4 42 13.75	9
11	8 42 16.2	Weisse XXIII, 1032	23 54 1.54	4 46 0.06	5
		Weisse XXIII, 1045	23 54 1.67	4 45 59.85	5
20	8 17 49.1	Weisse O, 83	0 4 47.89	5 10 9.75	13
21	6 49 59.6	Weisse O, 83	0 5 59.21	5 13 19.22	16
24	9 20 18.7	Weisse O, 210	0 9 58.73	5 24 45.83	7
26	8 51 17.0	Weisse O, 210	0 12 34.61	5 32 38.92	12
27	7 16 10.8	Weisse O, 210	0 13 49.25	+ 5 36 31.03	12

MEAN PLACES, 1850.0, OF STARS COMPARED WITH VICTORIA.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
(° 28)	9.5	23 25 0.74	Washington Equatorial	+ 6 41 13.66	Washington Equatorial.
1626, Santini	7.5	23 24 35.12	Washington Transit	6 15 34.94	Y. 3, M. 1, 54—56.
(° 29)	9.5	23 25 32.76	Washington Equatorial	6 1 37.97	Washington Equatorial.
Weisse XXIII, 458	9	23 22 44.02	Washington Transit	5 35 58.58	Y. 2, 55.
Weisse XXIII, 534	9	23 26 13.64	Weisse Catalogue	5 8 11.30	Y. 4, 54, 56.
Weisse XXIII, 602	9	23 29 9.87	Washington Transit	5 5 14.70	Y. 3, 54.
8233, B. A. Catalogue	4.5	23 32 14.40	Washington Transit	4 48 49.87	Y. 22, M. 7, 53, 57.
Weisse XXIII, 803	9	23 39 21.76	Washington Transit	4 25 2.92	Y. 3, 54, 56.
Weisse XXIII, 934	9	23 45 32.19	Washington Transit	4 19 24.46	Y. 4, 54, 56.
Weisse XXIII, 1032	9	23 50 7.20	Washington Transit	4 34 11.81	Y. 3, 54, 57.
Weisse XXIII, 1045	9	23 50 41.92	Washington Transit	4 48 53.33	Y. 2, 55.
Weisse O, 83	9	0 5 6.02	Weisse Catalogue	5 20 32.09	Y. 2, 54.
Weisse O, 210	9	0 12 22.76	Weisse Catalogue	5 27 32.60	Y. 1, M. 1, 55, 56.

APPARENT PLACES OF EGERIA.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of Comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
December 24	8 2 49.2	Weisse I, 501	1 33 27.72	+ 11 20 33.69	6
26	6 56 38.2	Weisse I, 501	1 33 52.56	11 33 18.47	10
		Weisse I, 539	1 33 52.55	11 33 18.55	10
27	6 16 19.0	Weisse I, 539	1 34 7.35	+ 11 39 44.25	8

MEAN PLACES, 1850.0, OF STARS COMPARED WITH EGERIA.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Weisse I, 501	6	1 29 9.07	Rumker	+ 11 22 21.44	Y. 2, M. 1, 54, 56, et Rumk.
Weisse I, 539	8.5	1 31 12.98	Weisse Catalogue	+ 11 40 30.58	Y. 3, 56.

APPARENT PLACES OF VENUS.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
October 19	6 15 43.33	30556, Lalande, (doubtful)	16 40 10.07	— 26 32 38.45	5
	6 16 29.88	30556, Lalande, (doubtful)	16 40 9.91	26 32 45.81	3
21	6 10 14.85	Argelander's Zones, 214, 54	16 47 45.07	26 50 17.27	4
	6 13 8.46	Argelander's Zones, 214, 54	16 47 45.46	26 50 14.33	4
22	5 57 39.10	Argelander's Zones, 388, 85	16 51 27.82	26 58 26.70	5
	5 57 7.59	Argelander's Zones, 388, 85	16 51 27.95	26 58 23.89	4
28	5 56 51.31	Argelander's Zones, 388, 115	17 12 56.90	27 36 49.74	3
	5 58 53.49	Argelander's Zones, 388, 115	17 12 57.25	27 36 52.47	3
November 1	5 45 16.04	7371, LaCaille	17 26 5.67	27 51 37.68	4
	5 50 15.06	7371, LaCaille	17 26 6.18	27 51 40.43	4
2	5 44 50.88	7371, LaCaille	17 29 12.11		5
	5 41 49.95	7371, LaCaille		27 54 0.72	6
	5 44 16.27	7371, LaCaille		27 54 1.89	6
9	5 36 7.98	6063, B. A. Catalogue	17 48 26.76	27 56 30.96	3
	5 39 26.73	6063, B. A. Catalogue	17 48 27.16	27 56 32.02	3
10	5 19 0.07	6063, B. A. Catalogue	17 50 45.84	27 54 50.97	3
	5 16 47.51	6063, B. A. Catalogue	17 50 46.31	27 55 0.27	2
13	5 31 31.44	Argelander's Zones, 223, 38	17 57 6.26	27 47 15.13	4
	5 34 28.82	Argelander's Zones, 223, 38	17 57 6.26	27 47 21.82	4
14	5 24 12.13	Argelander's Zones, 223, 46	17 58 57.22	27 43 45.90	4
	5 26 18.83	Argelander's Zones, 223, 46	17 58 57.26	27 43 52.59	4
21	5 15 15.09	6194, B. A. Catalogue	18 7 51.78	27 6 32.15	11
	5 14 57.12	6194, B. A. Catalogue	18 7 51.76	— 27 6 37.14	10

MEAN PLACES, 1850.0, OF STARS COMPARED WITH VENUS.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
30556, Lalande	7.5	16 40 55.21	Lalande Catalogue	— 26 28 29.32	Y. 8, 56, 57.
Argelander's Zones, 214, 54	8.5	16 49 11.71	Argelander's Zones	26 52 23.71	Y. 5, 56.
Argelander's Zones, 388, 85	7.5	16 51 59.11	Argelander's Zones	27 1 16.69	Argelander's Zones.
Argelander's Zones, 388, 115	8.5	17 13 22.14	Argelander's Zones	27 31 23.96	Argelander's Zones.
7371 Lalande	7	17 28 47.02	B. A. Catalogue	27 56 59.02	Y. 4, 56.
B. A. Catalogue	6.5	17 47 14.76	B. A. Catalogue	28 2 7.18	Y. 4, 56.
der's Zones, 223, 38	8	17 55 54.17	Argelander's Zones	27 50 10.44	Y. 4, 56.
der's Zones, 223, 46	8	17 59 50.53	Argelander's Zones	27 45 3.07	Y. 5, 56.
. A. Catalogue	5.5	18 8 39.99	Argelander's Zones	— 27 5 28.52	Y. 5, 56.

CATALOGUE

OF

STARS OBSERVED

IN THE YEARS

1849 AND 1850.

NATIONAL OBSERVATORY.

0h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
1	Weisse XXIII, 1242	50	0 8.09	C. 1	−11 57 50.40	C. 1
2	α Andromedæ - -	50	0 38.52	T. 5		
		49	38.54	C. 12	+28 15 49.29	C. 3
		50	38.52	C. 4	41.94	C. 2
3	γ Pegasi - - - -	50	5 30.82	T. 12		
		49	30.95	C. 8		
		50	30.97	C. 7	14 20 58.31	C. 1
4	θ Andromedæ - -	49	9	- -	37 51 53.50	P. 2
5	α Cassiopeæ - - -	50	32 1.69	T. 3		
		49	1.48	C. 8	55 42 50.63	C. 2
	S. P.	49	1.13	C. 2		
		50	- - -	- -	50.17	M. 1
		50	1.42	C. 3	50.06	C. 2
6	β Ceti - - - - -	50	36 3.79	T. 2		
7	20 Ceti, (242) - - -	50	45 20.49	T. 1		
		50	20.62	C. 1	− 1 57 36.49	C. 1

1h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
8	Polaris - - - -	49	5 0.69	T. 22		
		50	2.86	T. 5		
	S. P.	50	3.14	T. 26		
		49	- - -	- -	+88 30 34.64	M. 1
	S. P.	49	- - -	- -	35.63	M. 6
		50	- - -	- -	33.95	M. 3
	S. P.	50	- - -	- -	35.53	M. 4
		49	0.78	C 24	34.36	C. 13
	S. P.	49	1.26	C. 25	35.81	C. 11
		50	2.46	C. 14	34.84	C. 6
	S. P.	50	1.47	C. 22	36.38	C. 11
9	θ¹ Ceti - - - - -	49	16 31.51	T. 5		
		49	31.54	C. 2		
10	Lalande 2603 - -	49	18		38 52 34.17	P. 1
11	μ Piscium - - - -	49	22 20.03	C. 1		
12	ν Piscium - - - -	50	33 37.73	T. 1		
		49	38.01	C. 1		
		50	38.94	C. 1	4 33 38.61	C. 1
13	ο Piscium - - - -	50	37 28.45	T. 1		
14	Anonymous - -	49	44		38 53 52.10	P. 1
15	Anonymous - -	49	47		38 52 42.86	P. 1
16	α Arietis - - - -	49	58 43.61	T. 1		
		50	43.63	T. 3		
		49	43.58	C. 4	+22 45 3.18	C. 1
		50	43.58	C. 4	2.82	C. 1

2h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
17	Anonymous - -	49	2		+38 53 2.13	P. 1
18	4387 Lalande - -	49	15		38 59 42.22	P. 1
19	ξ² Ceti - - - -	49	20 11.45	C. 1		
20	4667 Lalande - -	49	23		+36 40 11.38	P. 1
21	4784 Lalande - -	49	28		+38 5 0.59	P. 1
22	Anonymous - -	49	34		37 57 33.21	P. 1

2h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
23	γ Ceti - - - - -	49	35 31.92	T. 3		
		50	31.94	T. 5		
		49	31.85	C. 3	2 36 2.74	C. 2
		50	31.90	C. 2	7.39	C. 1
24	5115 Lalande - -	49	35		38 52 21.36	P. 1
25	Arietis, (845) - -	49	36 50.43	T. 1		
26	Anonymous - -	49	40 47.42	C. 1	7 54 36.82	C. 1
27	5300 Lalande - -	50	48		37 47 57.97	P. 1
28	Anonymous - -	49	48		38 26 39.78	P. 1
29	α Ceti - - - - -	49	54 26.57	T. 3		
		50	26.49	T. 2		
		49	26.59	C. 5	3 29 54.62	C. 2
		50	26.46	C. 2	55.41	C. 1
30	5682 Lalande - -	49	57		+38 1 0.62	P. 1

3h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
31	5834, Lalande -	49	2	- -	+37 29 47.74	P. 1
32	α Persei - - - -	49	13 38.26	T. 4		
		50	38.11	T. 2		
*		49	38.28	C. 10	49 19 20.06	C. 3
		50	38.26	C. 3	20.57	C. 1
33	Anonymous - -	49	30 38.56	T. 2	33 37	
34	Persei, (1132) -	49	32 52.91	T. 2		
35	17 Tauri - - - -	50	35 58.58	C. 2		
36	23 Tauri - - - -	50	37 25.97	C. 1		
37	η Tauri - - - -	49	38 34.51	T. 6		
		50	34.54	T. 2		
		49	- - -	-	23 38 13.62	M. 2
		49	34.59	C. 8	15.44	C. 5
		50	34.44	C. 4		
38	Anonymous - -	49	47 0.23	T. 1	35 33	
39	Anonymous - -	49	47 48.22	T. 1		
		49	48.15	C. 1	+36 2 37.60	C. 1
40	γ¹ Eridani - - -	49	51 1.96	T. 7		
		50	2.12	T. 2		
		49	1.97	C. 7	−13 56 20.56	C. 2
		50	1.85	C. 3	17.64	C. 1
41	7391, Lalande -	49	52	- -	+38 40 25.68	P. 1
42	λ Tauri - - - -	49	52 22.59	T. 1		
		50	- - -	- -	+12 3 45.42	M. 1
		49	22.64	C. 1	38.26	C. 1

4h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
43	γ Tauri - - - -	49	11 15.61	C. 1	+15 15 43.05	C. 1
44	α Tauri - - - -	49	27 19.02	T. 10		
		50	19.03	T. 6		
		49	- - -	- -	16 12 10.45	M. 1
		49	19.05	C. 17	11.71	C. 7
		50	19.04	C. 3		
45	9106, Lalande -	44	44 0.00	- -	43 48 34.58	M. 1

† In the 5th and 7th columns, T. signifies the Transit, M. the Mural, C. the Meridian Circle, and P. the Prime Vertical Transit; the numerals following these letters signify the number of observations.

4h.—Continued.

Number	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
46	Anonymous - -	49	44 5.86	T. 10	+43 56	
47	Anonymous - -	49	44 23.26	T. 1	43 50	
48	Anonymous - -	49	44 39.88	T. 2	43 51	
49	Anonymous - -	49	45 7.00	T. 2	43 50	
50	Anonymous - -	49	51 34.85	T. 1	44 24	
51	ι Tauri - - - -	49	54 7.73	T. 1		
		49	8.10	C. 1	21 22 17 95	C. 1
52	Anonymous - -	49	54 24.19	T. 1	45 7	
53	Anonymous - -	49	55 44.58	T. 2	44 30	
54	Tauri, (1562) - -	49	56 36.39	T. 1		
55	Anonymous - -	49	57 45.43	T. 1	26 30	
56	Anonymous - -	49	58 39.90	T. 1	26 7	
57	Anonymous - -	49	58 40.05	T. 1	+26 30	

5h.

Number	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
58	Anonymous - -	49	1 45.27	T. 1	+26 30	
59	Anonymous - -	49	2 4.67	T. 2	26 30	
60	B. Z., 396 - - -	49	3 4.62	T. 1	26 16	
		50	4.87	C. 1	26 16	
		50	4.48	T. 1	26 16	
61	α Aurigæ - - -	49	5 36.96	T. 9		
		50	36.90	T. 2		
		49	- - -	- -	+45 50 30.34	M. 1
		50	- - -	- -	20.93	M. 1
		49	36.84	C. 16	19.02	C. 4
		50	37.01	C. 3	21.26	C. 1
62	Anonymous - -	49	6 20.65	T. 1	— 8 20	
63	β Orionis - - -	49	7 19.80	T. 9		
		50	19.84	T. 9		
		49	19.82	C 10	— 8 22 42.04	C. 1
		50	19.91	C. 3		
64	Anonymous - -	49	10 31.52	T. 1	+26 30	
65	Anonymous - -	49	13 53.34	T. 1	26 30	
66	Anonymous - -	49	14 53.33	T. 1	26 30	
67	Anonymous - -	49	15 16.24	T. 1	26 30	
68	Anonymous - -	49	16 48.18	T. 1	26 30	
69	β Tauri - - - -	49	16 48.78	T. 13		
		50	48.79	T. 11		
		49	48.77	C. 15	28 28 33.03	C. 7
		50	48.77	C. 2		
		49	- - -	- -	30.75	M. 2
70	Anonymous - -	49	17 16.30	T. 1	26 30	
71	Anonymous - -	50	17	- -	38 55 9.18	P. 1
72	Anonymous - -	49	18 47.73	T. 1	26 30	
73	Anonymous - -	50	19	- -	38 55 38.42	P. 1
74	Anonymous - -	49	20 22.61	T. 1	26 30	
75	Anonomous - -	49	21 43.08	T. 1	26 30	
76	Anonymous - -	49	22 35.90	T. 1	+26 30	
77	δ Orionis - - -	49	24 20.70	T. 16		
		50	20.68	T. 9		
		49	- - -	- -	— 0 24 52.91	M. 1
		49	20.68	C. 14	51.82	C. 1
		50	20.69	C. 5	52.37	C. 1

5h.—Continued.

Number	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
78	α Leporis - - -	49	26 6.97	T. 2		
		49	6.96	C. 5		
		50	6.78	C. 1		
79	ε Orionis - - -	49	28 36.21	T. 14		
		49	36.17	T. 6		
		49	36.19	C. 10		
		49	36.21	C. 5		
80	ζ Tauri - - - -	49	28 41.03	T. 1		
		49	40.92	C. 1	+21 2 47.04	C. 1
81	10650, Lalande -	50	31	- -	38 6 54.24	P. 1
		49	31	- -	53.60	P. 1
82	10666, Lalande -	50	32	- -	38 7 2.75	P. 1
83	Anonymous - -	49	33	- -	+38 16 33.81	P. 1
84	α Columbæ - - -	49	34 13.11	T. 3		
		50	13.14	T. 1		
		49	- - -	- -	—34 9 23.41	M. 1
		49	13.17	C. 9	25.98	C. 2
		50	12.94	C. 2	28.65	C. 1
85	α Orionis - - -	49	47 3.10	T. 10		
		50	3.11	T 11		
		49	3.11	C. 16		
		50	3.11	C. 7	+ 7 22 26.70	C. 4
86	θ Aurigæ - - -	49	49	- -	37 11 47.20	P. 1
87	Aurigæ, 1935 - -	49	54	- -	37 57 52.13	P. 1
88	11529, Lalande -	50	58	- -	+37 59 40.19	P. 1

6h.

Number	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
89	Anonymous - -	50	6	- -	+38 53 29.58	P. 1
90	μ Geminorum - -	49	13 53.06	T. 1		
		50	53.28	T. 2		
		49	53.14	C. 6	22 35 9.82	C. 3
		50	53.19	C. 2	8.33	C. 2
91	12134, Lalande -	49	15	- -	37 23 15.62	P. 1
92	Anonymous - -	49	25	- -	37 49 37.97	P. 1
93	Anonymous - -	49	25	- -	37 49 43.50	P. 1
94	2139, Aurigæ - -	49	26	- -	38 33 38.08	P. 2
95	51 Hey. Cephei - -	49	- - -	- -	87 15 22.03	M. 1
	s. p.	49	- - -	- -	26.83	M. 1
		50	28 35.42	C. 1		
96	γ Geminorum - -	49	29 2.74	C. 2	16 31 21.14	C. 1
97	ξ Geminorum - -	49	36 52.22	C. 1	+13 2 11.93	C. 1
98	α Canis Majoris -	49	38 32.31	T. 9		
		50	32.21	T. 18		
		49	32.27	C. 22	—16 30 49.22	C. 7
		50	32.34	C. 6	50.18	C. 3
99	Anonymous - -	49	40 6.59	T. 1	+52 10	
100	Aurigæ, 2239 - -	50	42	- -	+38 28 9.18	P. 1
101	ε Canis Majoris - -	49	52 43.87	T. 8		
		50	43.86	T. 3		
		49	- - -	- -	—28 46 16.25	M. 2
		49	43.84	C. 9	15.50	C. 2
		50	43.78	C. 5	17.39	C. 1

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
	7h.					
			m. s.		° ′ ″	
102	13873, Lalande	49	3	- -	+36 22 10.48	P. 1
103	14120, Lalande	49	10	- -	36 56 34.54	P. 1
104	δ Geminorum	49	11 9.59	T. 9		
		50	9.64	T. 9		
		49	- - -	- -	22 15 13.26	M 3
		49	9.61	C. 7	15.06	C. 3
		50	9.79	C. 3	11.86	C. 1
105	14218, Lalande	49	12	- -	37 2 15.25	P. 1
106	14265, Lalande	49	18	- -	35 6 18.94	P. 1
107	14484, Lalande	49	20	- -	38 28 32.25	P. 1
108	14499, Lalande	49	21	- -	37 4 59.15	P. 1
109	a^1 Geminorum	49	- - -	- -	32 12 41.30	M. 2
		49	- - -	- -	43.79	P. 1
110	a^2 Geminorum	49	25 1.28	T. 14		
		50	1.27	T. 13		
		49	- - -	- -	32 12 43.38	M. 3
		49	1.27	C. 10	44.25	C. 5
		50	1.27	C 3	41.80	C. 1
111	o Geminorum	49	29	- -	34 55 24.65	P. 1
112	14806, Lalande	49	29	- -	35 22 45.19	P. 1
113	α Canis Minoris	49	31 26.85	T. 11		
		50	26.83	T. 14		
		49	- - -	- -	5 36 21.01	M. 1
		49	26.82	C. 13	21.36	C. 4
		50	26.86	C. 3	22.96	C. 1
114	κ Geminorum	50	35 23.09	T. 1		
	(2551)	49	- - -	- -	24 45 10.76	M. 1
		49	23.13	C. 1	12.84	C. 1
		50	23.39	C. 2	10.36	C. 1
115	β Geminorum	49	36 7.77	T. 11		
		50	7.73	T. 14		
		49	- - -	- -	28 23 1.75	M. 4
		49	7.75	C. 11	2.43	C. 3
		50	7.79	C. 2	22 58.71	C. 1
116	15882, Lalande	49	59	- -	+35 53 58.55	P. 1
	8h.					
117	15 Argus	49	1 9.32	T. 6		
		50	9.43	T. 6		
		49	9.36	C. 5	—23 52 29.45	C. 4
		50	9.32	C. 2		
118	Anonymous	49	22	- -	+37 45 53.25	P. 1
119	θ Cancri	49	23 2.35	T. 1		
		50	1.94	T. 1		
		49	2.31	C. 1	18 35 54.87	C. 1
120	δ Cancri	49	36 9.19	T. 1		
		50	9.07	T. 1		
		49	9.30	C. 2	18 42 8.18	C. 2
		50	9.41	C. 1		
121	Anonymous	49	37	- -	37 35 9.28	P. 1
122	ε Hydræ	49	38 49.70	T. 5		
		50	49.71	T. 11		
		49	- - -	- -	6 57 57.11	M. 3
		49	49.75	C. 5	56.89	4 C.
		50	49.67	C. 1		
123	ι Ursæ Majoris	49	48 54.76	T. 4		
		50	54.89	T. 5		
		49	- - -	- -	48 37 35.42	M. 3
		49	54.73	C. 7	36.82	C. 6

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
	8h.—Continued.					
			m. s.		° ′ ″	
124	α Cancri	50	50 16.71	T. 2		
		49	16.47	C. 1	+12 26 6.97	C. 1
		50	16.77	C 1		
125	κ Cancri	50	59 36.93	T 1		
	9h.					
126	α Hydræ	49	20 12.91	T. 6		
		50	12.92	T. 10		
		49	- - -	- -	— 8 0 41.02	M. 1
		49	12.92	C. 12	40.11	C. 6
		50	12.91	C. 3	39.61	C. 1
127	θ Ursæ Majoris	50	22 47.60	C. 1		
128	ξ Leonis	49	23 51.27	T. 2		
		49	- - -	- -	+11 57 41.42	M. 1
		49	51.42	C. 1	43.24	C. 1
129	o Leonis	49	33 8.32	T. 1		
		50	8.26	T. 1		
		49	8.47	C. 2	10 34 21.09	C. 2
130	ε Leonis	49	37 19.65	T. 7		
		50	19.64	T. 12		
		49	- - -	- -	24 27 43.98	M. 3
		49	19.60	C. 12	45.08	C 8
		50	19.71	C. 2	45.19	C. 1
131	π Leonis	50	52 16.63	T. 1		
132	η Leonis	49	59 8.93	C. 1	+17 29 33.26	C. 1
	10h.					
133	α Leonis	49	0 22.61	T. 10		
		50	22.66	T. 12		
		49	- - -	- -	+12 41 53.98	M. 2
		49	22.74	C. 14	55.24	C. 7
		50	22.66	C. 3	54.49	C. 2
134	ρ Leonis	49	24 54.25	T. 1		
		50	46.55	T. 1		
135	Weisse X, 456	49	26	. .	— 3 30 13.29	M. 1
136	Anonymous	49	26 21.10	T. 1	3 51	
137	Anonymous	49	26	- -	4 6 11.73	M. 1
138	Anonymous	49	28 9.97	T. 1		
		49	- - -	- -	3 49 50.64	M. 1
		49	8.88	C. 1	48.99	C. 1
139	Anonymous	49	28 54.62	T. 1	3 51	
140	Weisse X, 577	49	28 55	- -	4 3 13.06	M. 1
141	Anonymous	49	28 55	- -	4 8 25.88	M. 1
142	Anonymous	49	29 43.21	T. 1	3 50	
143	Anonymous	49	29 42.99	C. 1	3 28 12.33	C. 1
144	Leonis Min., (3661)	50	33 46.20	T. 1		
145	Weisse X, 637	49	35 27.23	T. 1		
		49	- - -	- -	3 37 24.84	M. 1
		49	27.06	C. 1	20.09	C. 1
146	Leonis Min., (3704)	50	40 40.14	T. 1		
147	Leonis Min., (3728)	50	44 54.52	T. 1		
148	Weisse X, 801	49	45 1.91	T. 2		
		49	- - -	- -	0 44 35.22	M. 2
149	Anonymous	49	45 59.95	T. 1	0 46	
150	Anonymous	49	46 2	- -	— 0 33 26.87	M. 1

10h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
151	Weisse X, 859 -	49	46 54.37	. .	— 0 43 12.74	C. 1
		49	- - -	. .	16.30	M. 2
152	Anonymous - -	49	47	. .	0 37 35.49	M. 1
		49	48 26.57	T. 2		
153	21026, Lalande -	49	- - -	. .	— 0 49 10.77	M. 2
		49	26.57	C. 1	6.50	C. 1
154	β Ursæ Majoris - -	50	52 45.50	T. 1		
155	d Leonis - - - -	49	52 48.85	C. 1	+ 4 25 18.09	C. 1
	(3768) - - - -	49	48.84	T 2		
156	α Ursæ Majoris - -	49	54 25.71	T. 4		
		49	S.P. 25.49	T. 1	*	
		50	25.73	T. 12		
		49	- - -	- -	+62 33 35.53	M. 1
		49	25.62	C. 8	34.25	C. 5
		49	S.P. 25.47	C. 2		
157	χ Leonis - - - -	49	57 16.51	T. 3		
		50	16.48	T. 1		
		49	16.52	C. 1		

11h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
158	Anonymous - -	49	4 15.30	T. 1	+41.24	
159	δ Leonis - - - -	49	6 7.40	T. 10		
		50	7.47	T. 14		
		49	- - -	- -	21 20 40.15	M. 1
		49	7.44	C. 8	42.87	C. 4
		50	7.41	C. 1		
160	21563, Lalande -	49	10		+36 18 32.06	P. 1
161	δ Hydræ et Crateris	49	11 50.65	T. 10		
		50	50.66	T 16		
		49	50.64	C. 7	—13 58 3.71	C. 3
		50	50.48	C. 1		
162	σ Leonis - - - -	49	13 24.04	T. 2		
		49	24.02	C. 2	+ 6 51 10.21	C. 2
163	τ Leonis - - - -	49	20 13.40	T. 2		
		50	13.23	T. 1		
		49	12.97	C. 1	3 40 54.38	C. 1
164	Crateris, (3925) -	49	25 10.09	T. 1		
165	Hydræ, (3926) -	50	25 29.42	T. 1		
166	υ Leonis - - - -	49	29 15.96	T. 1		
		49	16.03	C. 1	0 0 16.30	C. 1
167	Hydræ, (3963) -	50	32 46.24	T. 1		
168	Leonis, (3964) -	50	32 58.71	T. 1		
169	Ursæ Majoris, 3965	49	32		35 2 56.67	P. 1
170	ζ Crateris - - -	49	37 9.68	T. 1		
171	ν Virginis - - -	50	38 8.65	T. 1		
172	Anonymous - -	49	40 55.31	T. 1	15 5	
173	β Leonis - - - -	49	41 24.22	T. 6		
		50	24.24	T. 15		
		49	- - -	- -	+15 24 36.94	M. 1
		49	24.27	C. 11	38.19	C. 5
		50	24.23	C. 6	38.98	C. 2
174	β Virginis - - -	49	42 52.78	T. 1		
		50	52.73	T. 2		
		49	52.81	C. 1		

11h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
175	γ Ursæ Majoris -	49	45 54.98	T. 2		
		50	55.08	T. 8		
		49	54.93	C. 7		
		50	54.94	C. 3		
176	22565 Lalande -	49	51		+37 47 47.72	P. 1
177	Virginis, (4063) -	49	55 55.13	T. 1		

12h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
178	Virginis, (4083) -	49	0 19.74	T. 1		
179	Virginis, (4114) -	49	5 47.55	T. 1		
180	η Virginis - - -	49	12 13.99	T. 3		
		49	- - -	- -	+ 0 10 2.41	M. 1
		49	13.91	C. 4	2.85	C. 3
181	Virginis, (4168) -	49	14 54.36	T. 2		
182	Virginis, (4200) -	49	20 9.82	T. 1		
183	β Corvi - - - -	49	26 30.92	T. 9		
		50	30.88	T. 14		
		49	- - -	- -	—22 33 59.99	M. 2
		49	30.87	C. 9	57.65	C. 1
		50	30.92	C. 7	57.91	C. 3
184	γ Virginis - - -	49	34 3.84	T. 1		
		49	3.57	C. 2	— 0 37 35.95	C. 1
185	Virginis, (4286) -	49	38 2.28	T. 1		
186	Weisse XII, 708 -	50	41 23.16	T. 2		
187	δ Virginis - - -	49	48 3.03	T. 1		
188	12 Canum Venaticor.		49 0.18	T. 5		
			0.14	T. 14		
			0.14	C. 1		

13h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
189	θ Virginis - - -	50	2 11.29	T. 1		
190	α Virginis - - -	49	17 17.75	T. 19		
		50	17.78	T. 19		
		49	- - -	- -	—10 22 35.50	M. 1
		50	- - -	- -	36.20	M. 1
		49	17.65	C. 4		
		50	17.65	C. 2	32.84	C. 1
191	λ Virginis - - -	49	25 4.48	T. 1		
192	Anonymous - -	49	36 22.90	T. 1	+22 43	
193	Anonymous - -	49	36 52.72	T. 1	22 43	
194	Anonymous - -	49	37 13.16	T. 1	22 43	
195	B. Z., 460 - -	49	37 18.00	. .	22 32 24.74	M. 1
196	Anonymous - -	49	38 17.07	T. 1	22 43	
197	Anonymous - -	49	41 32.27	T. 1		
		49	- - -	- -	22 46 15.26	M. 1
		49	32.17	C. 1	2.78	C. 1
198	η Ursæ Majoris - -	49	41 37.39	T. 5		
		50	37.47	T. 16		
		49	- - -	- -	50 3 49.37	M. 2
		49	37.43	C. 12	49.78	C. 5
		50	37.40	C. 9	49.78	C. 3
199	B. Z., 412 - -	49	42	. .	+23 1 57.98	C. 3

* This observation, in the list of mean places, page 92, is put in the hour of the lower transit.

13h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
200	Anonymous - -	49	42 0.81	T. 1	+22 43	
201	υ Bootis - - - -	49	42 14.53	T. 1		
202	Anonymous - -	49	43 16.04	T. 1		
		49	- - -	- -	22 42 40.76	M. 1
		49	16.08	C. 1	43.92	C. 1
203	η Bootis - - - -	49	47 32.51	T. 13		
		50	32.44	T. 19		
		50	- - -	- -	19 9 5.91	M. 1
		49	32.51	C. 8	6.24	C. 2
		50	32.55	C. 6	5.85	C. 3
204	25674, Lalande -	49	50 20.82	T. 1		
		49	- - -	- -	24 6 14.20	M. 2
		49	20.77	C. 1	14.88	C. 1
205	Anonymous - -	49	51 38.28	T. 1	23 47	
206	B. Z., 412 - -	49	51 22.00	. .	23 36 4.51	M. 1
207	B. Z., 412 - -	49	52 42.43	T. 1	23 47	
208	B. Z., 412 - -	49	- - -	- -	23 39 35.30	M. 1
209	Anonymous - -	49	52.58	- -	24 1 47.77	M. 2
210	Anonymous - -	49	54 21.24	T. 1	23 47	
211	B. Z., 412 - -	49	54 31.16	C. 1	23 55 58.19	C. 1
		49	31.35	T. 1		
		49	- - -	- -	56.87	M. 2
212	Anonymous - -	49	56 24.48	C. 1	+23 49 52.88	C. 1
213	θ Centauri - - -	50	57 52.34	T. 6		
		50	- - -	- -	−35 37 45.07	M. 1
		50	52.76	C. 2	49.85	C. 1
214	Anonymous - -	49	58 53.40	T. 1	+23 56	
215	Anonymous - -	49	59	- -	23 54 59.39	M. 1
216	Anonymous - -	49	59 3.68	C. 1	23 55 37.15	C. 1
217	B. Z, 412 - -	49	- - -	- -	+24 6 26.57	M. 2
		49	59 22.53	C. 1	28.16	C. 1

14h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
218	Hydræ, (4711) -	50	4 39.24	T. 4		
		50	- - -	- -	−25 54 17.99	M. 3
219	κ Virginis - - -	50	4 54.05	T. 1		
220	ι Virginis - - -	50	8 9.21	T. 1		
221	α Bootis - - - -	49	8 49.17	T. 20		
		50	49.21	T. 30		
		49	- - -	- -	+19 57 56.19	M. 3
		50	- - -	- -	55.35	M. 1
		49	49.24	C. 26	57.93	C. 5
		50	49.26	C. 11	57.40	C. 6
		49	- - -	- -	58.25	P. 5
		50	- - -	- -	57.94	P. 1
221a	Anonymous . .	49	8	- -	+35 16 54.00	P. 1
222	Hydræ, (4763) -	50	14 27.80	T. 4		
		50	- - -	- -	−27 3 44.37	M. 3
223	Hydræ, (4784) -	50	19 24.05	T. 5		
		50	- - -	- -	−28 48 51.68	M. 3
224	Bootis, 4812 -	50	26	- -	+38 58 0.30	M. 2
225	π Bootis - - - -	49	33 40.72	T. 1		
226	4 Libræ, (4854) -	- -	34 33.88	T. 6		
		- -	33.81	C. 1	−24 21 20.88	C. 1
		- -	- - -	- -	16.98	M. 3
227	Anonymous - -	50	38	- -	+27 9 7.80	M. 1

14h.—Continued

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and
			m. s.		° ′ ″	
228	ε Bootis - - - -	49	38 26.11	T. 16		
		50	26.15	T. 23		
		49	- - -	- -	+27 42 32.82	M.
		50	- - -	- -	33.18	M.
		49	26.10	C. 7	34.53	C.
		50	26.18	C. 1	32.14	C.
229	2 Libræ, (4894) -	49	42 24	- -	−15 22 12.22	M.
230	α² Libræ - - - -	49	42 35.27	T. 15		
		50	35.24	T. 22		
		49	- - -	- -	15 24 54.36	M.
		49	35.21	C. 5	53.67	C.
		50	35.26	C. 2	51.71	C.
231	Libræ, (4913) -	50	45 38.26	T. 2		
		50	- - -	- -	24 1 29.83	M.
		50	38.00	C. 2	29.77	C.
232	ξ² Libræ - - - -	50	48 38.17	T. 1		
233	27221, Lalande -	50	48		22 24 0.26	M.
234	Hydræ, (4930) -	50	49 47.16	T. 4		
		50	- - -	- -	−27 3 4.58	M.
		50	47.18	C. 1	8.97	C.
235	β Ursæ Minoris -	49	51 12.06	T. 5		
		50	12.06	T. 13		
		49	- - -	- -	+74 46 5.73	M.
		50	- - -	- -	6.35	M.
		49	11.97	C. 6	5.32	C.
		50	12.01	C. 2		
	s. P.	50	11.66	C. 1	7.14	C.
236	Anonymous - -	50	51 32.24	T. 1		
237	27390, Lalande -	49	52	- -	+35 42 6.03	P.
238	δ Libræ - - - -	49	52 57.54	C. 1		
239	Hydræ, (4940) -	50	53 10.52	T. 4		
		50	- - -	- -	−27 27 44.63	M. 3
240	Anonymous - -	50	53 29.16	T. 1	+59 7	
241	Libræ, (4941) -	49	53 32.44	T. 1		
242	Anonymous - -	50	53 42.63	T. 1		
		50	- - -	- -	+59 7 46.46	M. 4

15h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and
243	ι¹ Libræ - - - -	50	3 40.50	T. 1		
244	Lupi, (5009) - -	50	5 26.60	T. 4		
		50	- - -	- -	−30 57 17.81	M. 3
		50	26.75	C. 1	16.59	C. 1
245	27803, Lalande -	49	7	- -	+35 26 41.15	P. 1
246	β Libræ - - - -	49	8 56.38	T. 15		
		50	56.41	T. 13		
		49	- - -	- -	− 8 49 33.24	M. 8
		50	- - -	- -	34.68	M. 2
		49	56.42	C. 5	33.52	C. 3
		50	56.41	C. 5	32.82	C. 4
247	27837, Lalande -	50	9 45.71	T. 1		
248	27852, Lalande -	50	10 5.34	T. 1		
249	28090, Lalande -	50	17 25.27	T. 1		
250	Anonymous - -	50	18 15.75	T. 2	+64 54 18.67	M. 3
		50	- - -	- -		
251	Arg. Z., 209, 54 -	50	23 26.68	T. 3	−21 26 62.69	C. 1
		50	- - -	- -		
252	Libræ, (5125) -	49	25 59.02	T. 1		

15h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
253	α Coronæ Borealis -	49	28 20.18	T. 15		
		50	20.23	T. 10		
		49	- - -	- -	+27 13 21.74	M. 4
		50	- - -	- -	20 49	M. 1
		49	20..19	C. 7	23 10	C. 3
		49	- - -	- -	20 44	P. 1
254	28414, Lalande -	50	28 59.48	T. 1	—22 38 23.09	C. 2
		50	59.39	C. 1		
255	28446, Lalande -	50	29 56.00	T. 2	22 33 13.03	C. 3
		50	- - -	C. 1		
256	ψ¹ Lupi - - - -	50	30 14.86	- -	33 55 2.83	M. 1
		50	- - -	- -		
257	28466, Lalande -	50	30 32.41	T. 2	22 39 17.31	C. 2
		50	32.29	C. 2		
258	ψ² Lupi - - - -	50	33 8.17	T. 2	—34 13 25.24	M. 1
		50	- - -	- -		
259	Anonymous - -	50	36 37.64	T. 1		
260	α Serpentis - - -	49	36 52.92	T. 17		
		50	52.87	T. 19		
		49	- - -	- -	+ 6 54 5.12	M. 2
		49	52.88	C. 8	3.38	C. 4
		50	52.91	C. 1		
261	κ Coronæ Borealis -	49	44	- -	+36 7 33.54	P. 1
262	28891, Lalande -	50	45 0.82	T. 1		
263	ζ Ursæ Minoris - -	49	49 31.57	T. 2		
		50	31.75	T. 17		
		49	- - -	- -	+78 15 12.35	M. 1
		50	- - -	- -	13.79	M. 1
		49	31 43	C. 5	10.27	C. 3
		50	31.77	C. 3	11.48	C. 3
264	Libræ, (5290) -	49	49 47.61	T. 1		
265	β¹ Scorpii - - - -	49	56 43.27	T. 7		
		50	43.23	T. 8		
		49	- - -	- -	—19 23 24.38	M. 1
		50	- - -	- -	24.74	M. 1
		49	43.34	C. 2	26.18	C. 1
		50	43.20	C. 1	19.11	C. 1
266	Scorpii, (5333) -	49	57 2.18	C. 1		
267	Anonymous - -	50	58 40.66	T. 2	+70.7	
268	Anonymous - -	50	59	- -	69 39 46.54	M. 1
269	Anonymous - -	50	59 32.88	T. 1		
		50	- - -	- -	69 37 50.39	M. 1
270	Anonymous - -	50	59 42.73	T. 2		
		50	- - -	- -	70 8 27.41	M. 1
271	Anonymous - -	50	59 54.41	T. 1		
		50	- - -	- -	+69 38 35.33	M. 1

16h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
272	c¹ Scorpii - - - -	50	3 0.34	T. 2		
273	ν Scorpii - - - -	49	3 16.97	T. 2		
		49	16.81	C. 1		
274	2319, Groomb. -	50	5	- -	+70 39 46.60	M. 1
275	δ Ophiuchi - - -	49	6 29.26	T. 8		
		49	29.24	T. 9		
		49	- - -	- -	— 3 18 13.80	M. 2
		49	29.25	C. 6	14.15	C. 3
		50	29.26	C. 4	12.15	C. 4

16h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
276	Arg. Z., 210, 43 -	50	6 43.02	T. 2		
		50	43.08	C. 1	—24 44 6.36	C. 1
277	Arg. Z., 115, 156 -	50	8 21	- -	+70 43 24.47	M. 1
278	ψ Ophiuchi - - -	49	15 19.86	T. 2		
		49	15 19.69	C. 1		
279	Arg. Z., 115, 164 -	50	15 45.53	C. 1	71 12 17.43	M. 2
		50	- - -	- -	17.57	C. 1
280	Arg. Z., 115, 165 -	50	15 55.35	T. 1		
		50	- - -	- -	+71 18 36.13	M. 2
		50	55.90	C. 1	31.76	C. 1
281	α Scorpii - - - -	49	20 12.99	T. 7		
		50	13.14	T. 8		
		49	- - -	- -	—26 5 38.59	M. 2
		50	- - -	- -	38.78	M. 1
		49	13.01	C. 4	38.61	C. 3
		50	12.98	C. 5	39.98	C. 5
282	η Draconis - - -	50	21 58.38	T. 1		
		50	- - -	- -	+61 51 16.35	M. 1
283	φ Ophiuchi - - -	49	22 33.51	T. 2		
284	2356, Groomb. -	50	26 59.19	T. 1		
		50	- - -	- -	71 43 5.05	M. 1
285	Anonymous - -	49	28	- -	35 48 53.27	P. 1
286	ζ Herculis - - -	49	35	- -	+31 52 39.74	P. 1
287	ε Scorpii - - -	50	40 27.16	T. 7		
		50	- - -	- -	—34 0 54.20	C. 1
288	20 Ophiuchi - - -	49	41 32.36	T. 1		
		49	32.29	C. 1	—10 30 47.13	C. 1
289	2404, Groomb. -	50	56 37.17	T. 1		
		50	- - -	- -	+73 9 4.72	M. 1
		50	36.54	C. 1	2.24	C. 1
290	Ursæ Min. (5769)	50	59 16.86	T. 1		
		50	- - -	- -	+73 21 10.58	M. 1
		50	17.68	C. 1	- - - -	C. 1

17h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
291	ε Ursæ Majoris - -	50	1 31.09	T. 4		
		50	- - -	- -	+82 16 32.50	M. 2
		49	30.01	C. 4	29.33	C. 2
		50	- - -	- -	33.99	C. 1
292	η Ophiuchi - - -	49	1 46.57	T. 1		
		50	46.80	T. 2		
		49	- - -	- -	—15 32 1.95	M. 1
		49	46.55	C. 1		
		50	46.78	C. 1	31 58.75	C. 1
293	2418, Groomb. & A. Z., 126, 47 -	50	3 33.90	T. 1		
		50	- - -	- -	+73 24 11.26	M. 3
		50	33.96	C. 1	10.86	C. 2
294	2420, Groomb. -	50	4 29.60	T. 1		
		50	29.30	C. 1	+73 31 1.84	C. 1
		50	- - -	- -	4.37	M. 3
295	A Ophiuchi - - -	50	6 7.54	T. 3		
296	Ophiuchi, (5813) -	50	7 0.22	T. 2		
		50	- - -	- -	—26 19 27.41	M. 1
297	Ophiuchi, (5815) -	50	7 14.13	T. 1		
298	α Herculis - - -	49	7 48.45	T. 6		
		50	48.44	T. 8		
		50	- - -	- -	+14 33 55.24	M. 2
		49	48.52	C. 4	53.36	C. 1
		50	48.56	C. 1		

17h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
299	Ophiuchi, (5831) -	50	8 52.03	T. 1		
300	Anonymous - -	50	10 19.62	T. 2	+73.35	
301	ξ Ophiuchi - - -	50	12 0.99	T. 1		
		50	1.06	C. 1	−20 56 43.71	C. 1
302	Ophiuchi, (5846) -	50	12 31.74	T. 1		
		49	- - -	- -	24 44 55.68	M. 1
303	θ Ophiuchi - - -	49	12 47.93	T. 2		
		50	47.94	T. 4		
		49	- - -	- -	−24 50 38.94	M. 1
		49	47.96	C. 1		
		50	- - -	- -	36.38	C. 1
304	Anonymous - -	50	17 42.65	T. 2		
		50	- - -	- -	+73 35 53.61	M. 2
305	υ Scorpii - - - -	50	20 34.16	T. 3		
		50	- - -	- -	−37 10 12.39	M. 2
306	λ Scorpii - - - -	50	23 25.60	T. 2		
		50	- - -	- -	−36 59 18.13	M. 2
		50	- - -	- -	20.18	C. 2
307	β Draconis - - -	50	27 2.74	T. 3		
		50	- - -	- -	+52 24 52.11	M. 6
		50	2.71	C. 1		
308	α Ophiuchi - - -	49	27 58.30	T. 7		
		50	58.30	T. 19		
		49	- - -	- -	+12 40 24.57	M. 1
		49	58.32	C. 6	22.86	C. 2
		50	58.35	C. 2		
309	ε Serpentis - - -	50	32 58.93	T. 1		
310	58 Ophiuchi - - -	49	34 26.41	T. 1		
		49	26.51	C. 1	−21 36 19.86	C. 1
311	Serpentis, 6066 -	50	47 57.42	T. 4		
		50	- - -	- -	23 54 43.68	M. 1
		50	- - -	- -	46.99	C. 1
312	4 Sagittarii - -	50	50 38.15	T. 1		
		49	- - -	- -	−23 47 47.84	M. 2
		50	37.95	C. 1	49.90	C. 1
313	Sagittarii, 6080 -	50	50 59.94	T. 4		
314	γ Draconis - - -	49	53 7.39	T. 3		
		50	7.34	T. 3		
		49	- - -	- -	+51 30 30.15	M. 1
		50	- - -	- -	30.90	M. 13
		49	7.44	C. 4	31.63	C. 3
		50	7.50	C. 4	29.20	C. 2

18h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
315	Sagittarii, (6161)	50	2 34.12	T. 3		
316	μ^1 Sagittarii - - -	49	4 47.50	T. 9		
		50	47.54	T. 17		
		49	- - -	- -	−21 5 32.49	M. 2
		50	- - -	- -	32.43	M. 13
		49	47.58	C. 1	33.59	C. 3
		50	47.49	C. 7	31.36	C. 2
317	ε Sagittarii - - -	50	14 12.67	T. 3		
318	λ Sagittarii - - -	49	18 42.64	T. 1		
		49	42.72	C. 1	−25 29 59.86	C. 1
319	δ Ursæ Minoris -	49	20 43.62	T. 17		
		50	44.19	T. 14		
		50	S.P. 43.35	T. 4	°	

18h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
319	δ Ursæ Minoris -	49	- - -	- -	+86 35 50.76	M. 1
		49	45.48	C. 4	51.08	C. 1
		49	S.P. 43.86	C. 6	49.62	C. 3
		50	43.34	C. 11	49.51	C. 5
		50	S.P. 43.80	C. 3	52.63	C. 1
320	Sagittarii, (6304)	50	24 3.94	T. 1		
		50	- - -	- -	−24 12 46.07	M. 2
321	Sagittarii, (6314)	50	25 21.89	T. 1		
		50	- - -	- -	−24 19 51.66	M. 1
322	α Lyræ - - - -	49	31 51.48	T. 4		
		50	51.49	T. 21		
		49	- - -	- -	+38 38 48.90	M. 2
		50	- - -	- -	49.66	M. 17
		49	51.52	C. 12	50.16	C. 3
		50	51.54	C. 12	47.15	C. 4
		49	- - -	- -	50.41	P. 9
323	φ Sagittarii - - -	50	36 16.11	T. 2		
324	β Lyræ - - - -	49	44 32.46	T. 7		
		50	32.46	T. 18		
		49	- - -	- -	+33 11 29.33	M. 3
		49	32.48	C. 7	30.43	C. 4
		50	32.48	C. 8	29.19	C. 4
325	Sagittarii, (6461)	50	48	- -	−21 17 52.65	M. 1
326	35540, Lalande -	50	55 21.69	T. 1		
327	ε Sagittarii - - -	49	55 41.39	T. 1		
		50	41.69	T. 2		
		50	- - -	- -	21 57 20.96	M. 14
		49	41.38	C. 1	21.70	C. 1
328	Sagittarii, (6521)	50	57 34.15	C. 5	−27 53 5.18	C. 5
329	ζ Aquilæ - - - -	49	58 30.83	T. 6		
		50	30.92	T. 4		
		49	- - -	- -	+13 38 39.73	M. 2
		50	- - -	- -	40.76	M. 4
		49	30.96	C. 3	43.17	C. 1
		50	30.90	C. 2	37.98	C. 1

19h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
330	π Sagittarii - - -	49	0 50.49	T. 1		
		50	50.55	T. 2		
		50	50.38	C. 1	−21 15 23.87	C. 1
331	δ Aquilæ - - -	49	17 56.04	T. 8		
		50	56.01	T. 21		
		50	- - -	- -	+ 2 49 12.33	M. 12
		49	55.56	C. 14	12.06	C. 5
		50	55.99	C. 8	10.17	C. 5
332	λ^2 Sagittarii - - -	50	27 34.54	T. 1		
333	Sagittarii, (6726)	50	30 48.26	C. 2	−23 45 49.26	C. 2
		50	- - -	- -	46.69	M. 2
334	Sagittarii, (6727)	50	31 5.65	C. 3	23 46 1.59	C. 4
335	ϵ^2 Sagittarii - - -	49	33 56.21	T. 1		
		50	56.24	T. 1		
		50	- - -	- -	−16 28 14.37	M. 1
		49	56.13	C. 1	15.49	C. 1
336	γ Aquilæ - - -	49	39 7.61	T. 13		
		50	7.61	T. 24		
		50	- - -	- -	+10 15 5.92	M. 1
		49	7.60	C. 7	6.24	C. 6
		50	7.65	C. 8	4.39	C. 4

° The observations upon which this result depends are found in the 6th hour.

19h.—Continued.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs
			m. s.		° ′ ″	
337	α Aquilæ	49	43 27.77	T. 13		
		50	27.71	T. 25		
		49	- - -	- -	+ 8 28 33.25	M. 1
		50	- - -	- -	34.50	M. 6
		49	27.79	C. 16	34.73	C. 8
		50	27.78	C. 15	31.78	C. 4
338	β Aquilæ	49	47 56.62	T. 12		
		50	56.65	T. 24		
		49	- - -	- -	+ 6 2 9.65	M. 3
		49	56.62	C. 10	9.23	C. 4
		50	56.63	C. 8	9.61	C 3
339	g Sagittarii	49	49 26.26	T. 1		
		49	26.10	C. 1	—15 53 3.81	C. 1

20h.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs
340	α^1 Capricorni	49	- - -	- -	—12 58 2.65	M. 1
		50	9 19.75	C. 3	- - - -	C. 1
341	α^2 Capricorni	49	9 43.59	T. 10		
		50	43.69	T. 6		
		49	- - -	- -	13 0 20.13	M. 3
		50	- - -	- -	20.14	M. 1
		49	43.59	C. 11	20.08	C. 2
		50	43.60	C. 8	20.35	C. 7
342	β Capricorni	49	12 34.62	T. 1		
		50	34.69	T. 1		
		49	- - -	- -	—15 15 2.00	M. 1
		49	34.68	C. 2	1.95	C. 2
343	λ Ursæ Minoris	49	13 2.57	C. 3	+88 51 37.09	C. 2
		50	8 P. 2.27	C. 1		
344	π Capricorni	49	18 43.75	C. 1		
345	ρ Capricorni	49	20 17.85	C. 1	—18 18 18.19	C. 1
346	υ Capricorni, (7134)	49	31 30.21	T. 1		
		49	- - -	- -	—18 39 45.21	M. 1
		49	30.33	C. 1	40.31	C 1
347	α Cygni	49	36 19.08	T. 7		
		50	18.99	T. 7		
		49	- - -	- -	+44 44 48.41	M. 1
		50	- - -	- -	47.79	M. 3
		49	19.07	C. 8	48.51	C. 3
		50	19.12	C. 6	47.25	C. 4
348	ε Aquarii	49	39 33.16	C. 1		
349	μ Aquarii	49	44 33.46	C. 1		
350	η Capricorni	50	50 51.75	T. 1		
		50	51.61	C. 2		

21h.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs
351	61¹Cygni	49	0 10.61	T. 11		
		50	10.53	T. 2		
		49	- - -	- -	+38 0 53.14	M. 2
		50	- - -	- -	53.36	M. 4
		49	10.54	C. 7	55.80	C. 4
		50	10.56	C. 2	50.52	C. 2
352	61²Cygni	49	- - -	- -	+38 0 49.48	M. 2
		49	0 11.64	C. 1	52.83	C. 1
		50	12.08	C. 2	46.06	C. 1
353	ν Aquarii	50	1 25.01	T. 1		
		50	25.06	C. 2	—11 58 33.81	C. 2

21h.—Continued.

Number.	NAME.	Year.	R.A.	Inst. and No obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
354	ζ Cygni	49	6 33.16	T. 11		
		50	33.15	T. 10		
		49	- - -	- -	+29 36 50.31	M. 2
		49	33.19	C. 9	51.30	C. 5
		50	33.27	C. 3	50.03	C. 3
355	Capricorni, (7374)	49	7	. .	—15 47 29.34	M. 1
356	ι Capricorni	49	13 53.21	C. 1		
		50	53.19	C 1		
357	α Cephei	49	14 59.65	T. 6		
		50	59.67	T. 3		
		49	- - -	- -	+61 57 5.19	M. 2
		49	59.65	C. 11	6.67	C. 7
		50	59 70	C. 2	4.12	C. 2
358	Piscis Aust, (7458)	50	20 4.19	T. 1		
		50	- - -	- -	—31 53 17.06	C. 1
359	β Aquarii	49	23 39.46	T. 10		
		50	39.52	T. 4		
		49	- - -	- -	— 6 13 42.12	M. 5
		50	- - -	- -	42.37	M. 1
		49	39.49	C 12	39.45	C. 5
		50	39.53	C. 1	42.22	C. 1
360	β Cephei	49	26 42.27	T. 2		
		50	42.31	T. 4		
		49	- - -	- -	+69 54 10.22	M. 2
		49	42.20	C. 5		
		50	42.34	C. 1		
361	Weisse XXI, 662	50	27 38.11	T. 1		
362	ε Capricorni	50	28 40.37	T. 1		
363	γ Capricorni	49	31 46.33	T. 2		
		49	- - -	- -	—17 20 13.07	M. 2
		49	46.35	C. 2	9.72	C. 2
364	κ Capricorni	50	34 16.37	T. 1		
365	ε Pegasi	49	36 49.04	T. 9		
		50	49.04			
		49	- - -	- -	+ 9 11 24.01	M. 3
		50	- - -	- -	23.54	M. 5
		49	49.11	C. 14	26.02	C. 7
		50	49.00	C. 5	22.94	C. 5
366	δ Capricorni	49	38 45.27	T. 2		
		49	- - -	- -	—16 48 19.03	M. 2
		49	45.24	C. 3	19.23	C. 1
		50	45.29	C. 1	15.68	C. 1
367	42700, Lalande	49	- - -	- -	21 50 44.76	M. 4
		49	47 15.48	C. 1	37.95	C. 1
368	Anonymous	49	- - -	. -	21 28 24.58	M. 1
		49	48 12.68	C. 1	22.79	C. 1
369	Anonymous	49	49	- -	21 50 42.51	M. 1
		49	- - -	- -	21 26 54.07	M. 3
370	Rumker XXI, 163	49	49 56.71	C. 2	50.11	C. 2
371	Aquarii, (7649)	49	50	- -	21 53 44.78	M. 4
372	Anonymous	49	50 59	- -	20 43 6.85	M. 1
373	Arg. Zones, 237	49	- - -	- -	22 30 13.37	M. 1
		49	55 48.02	C. 1	12.44	C. 1
374	Anonymous	49	57.34	- -	20 29 59.30	M. 3
375	α Aquarii	49	58 4.61	T. 3		
		50	4.62	T. 8		
		49	- - -	- -	1 2 45.32	M. 1
		50	- - -	- -	45.26	M. 4
		49	4.75	C. 2	47.39	C. 3

21h. —Continued.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
376	ι Aquarii . . .	49	58 19.72	T. 2		
		49	19.82	C. 1		
		50	- - -	- -	—14 35 43.27	C. 1
377	- - - - - -	50	58 44.87	T. 1		
		49	45.09	C. 2		
		50	45.12	C. 5	47 41 9.98	C. 2
378	Anonymous . .	49	59	- -	20 25 3.25	M. 1
379	43106, Lalande .	49	59 29.54	T. 1		
		49	- - -	- -	—22 19 18.36	M. 2
		49	29.99	C. 1	17.73	C. 1

22h.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
380	Piscis Aust., (7714)	50	1 20.62	T. 2		
		50	- - -	- -	—33 16 57.05	M. 6
		50	20.46	C. 1	59.04	C 1
381	Anonymous . .	49	2 42.22	T. 2	+21.58	
382	λ Piscis Aust., (1750)	50	5 47.99	T. 3		
		50	47.80	C 1	—28 30 28.14	C. 1
383	θ Aquarii . . .	49	8 54.81	T. 1		
		49	- - -	- -	8 31 41.94	M. 1
		49	54.79	C. 1	39.67	C. 1
		50	54.89	C 1	34.46	C. 1
384	Aquarii, (7818) .	49	18	- -	17 30 6.55	M. 1
385	Aquarii, (7819) .	49	18	- -	17 30 11.91	M. 1
386	σ Aquarii, (7840) .	49	22 42.27	T. 1		
		49	- - -	- -	11 26 37.13	M. 2
		49	42.27	C. 2	33.81	C. 1
387	Aquarii, (7861) .	50	26 12.37	C. 1	-10 22 49.17	C. 1
388	ζ Pegasi . . .	49	33 58.87	T. 11		
		50	58.86	T. 12		
		49	- - -	- -	+10 2 59.73	M. 1
		49	58.88	C. 12	3 3.32	C. 5
		50	58.77	C. 2	3 0.02	C. 1
389	Piscis Australis .	50	34 0.77	T. 2		
390	λ Aquarii . . .	49	44 47.16	T. 1		
		50	47.10	T. 1		
		49	- - -	- -	— 8 22 35.31	M. 1
		49	46.92	C. 2		

22h. —Continued.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
391	α Piscis Australis .	49	49 20.94	T. 2		
		50	20.91	T. 11		
		49	- - -	- -	—30 24 57.49	M. 3
		50	- - -	- -	56.92	M. 2
		49	21.00	C. 11	56.34	C. 5
		50	21.00	C. 11	56.63	C. 11
392	α Pegasi . . .	49	57 17.51	T. 1		
		50	17.49	T. 11		
		49	- - -	- -	+14 23 59.00	M. 1
		50	- - -	- -	57.06	M. 2
		49	17.49	C. 9	59.69	C. 3
		50	17.51	C. 10	58.30	C. 8
393	Anonymous . .	49	58 4.84	T. 1	+14 8	

23h.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
394	φ Aquarii . . .	50	6 33.05	T. 2		
		50	33.11	C. 3	— 6 51 21.85	C. 2
395	ψ² Aquarii . . .	50	11 9.27	T. 2		
		50	9.34	C. 3	—10 25 44.97	C. 3
396	Weisse XXIII, 602	50	29 9.69	T. 1		
		50	- - -	- -	+ 5 5 17.93	M. 2
397	ι Piscium . . .	50	32 14.14	T. 5		
		50	- - -	- -	4 48 50.60	M. 3
		49	14.10	C. 2	48.93	C. 1
		50	14.21	C. 2	50.33	C. 1
398	γ Cephei . . .	49	33 13.95	T. 2		
		50	14.24	T. 1		
		49	- - -	- -	+76 47 43.22	M. 2
		49	13.98	C. 3		
		49	S.P. 13.90	C. 1	43.97	C. 1
		50	14.26	C. 1	40.50	C. 1
399	20 Piscium . . .	49	- - -	- -	— 3 35 39.98	M. 1
		49	40 13.97	C. 1		
400	27 Piscium . . .	49	- - -	- -	4 23 16.07	M. 1
		49	50 59.55	C. 1	12.01	C. 1
		50	59.55	C. 1	17.88	C. 1
401	Piscium, 8368 .	50	56 39.47	T. 1		
402	33 Piscium . . .	50	57 39.26	C. 1	6 32 49.42	C. 1
403	Weisse XXIII, 1210	50	58 38.99	C. 1	12 51 27.88	C. 1
404	Anonymous . .	50	59 42.60	C. 1	—15 52 6.23	C. 1

ERRATA.

Page	No.	Col.	For—	Read—
2	8	6	45s. 0	55s. 0
5	3	3	ϑ Leonis	ρ Leonis.
5	4	2	7	9
6	23	13	—64s. 45	+64. 45
6	24	13	+63 . 54	—63. 45
7	10	11	1m. 37. 88	0m. 37. 88
7	10	15	9h. 2m.	9h. 1m.
7	11	11	1m. 40. 63	0m. 40. 63
7	11	15	9h. 2m.	9h. 1m.
8	27	2	Leonis	δ Leonis.
10	2	3	ν Bootis	υ Bootis.
10	32	11	26m. 3. 71	26m. 4. 71
11	31	13	62s. 65	62s. 25
11	43	3	γ Scorpii	ν Scorpii.
12	18	9	5s. 2	6s. 2
12	44	5	30s. 3	39s. 3
12	50	5	30 . 3	30 . 0
12	51	3	γ Scorpii	ν Scorpii.
13	10	11	38m. 24. 54	48m. 24. 54
13	37	15	5h. 29m.	5h. 24
13	50	12	1s. 57	1s. 51
13	52	12	1 . 16	1 . 15
14	18	3	ξ Aquilæ	ζ Aquilæ.
14	50	4	55s. 4	56s. 4
15	15	15	20h. 26m.	20h. 36m.
17	20	9	11s. 8	11s. 0
17	24	6	52s. 0	22 . 0
17	25	6	7s. 8	52 . 8
17	47	15	21h. 37m.	21h. 38m.
18	12	15	22 32	22 33
18	15	15	21 23 58. 63	21 23 38. 63
18	17	9	29s. 4	20s. 4
18	32	15	22h. 33 19. 35	23h. 33 19. 35
23	36	15	11 6 9. 76	11 6 8. 76
24	24	1	- - - - -	dele 15
24	25	1	- - - - -	lege 15
35	32	11	3m. 41. 61	2m. 41. 61
35	32	15	21h. 2 37. 81	21h. 1 37. 81

Page.	No.	Col.	For—	Read—
37	26	3	δ Ursæ Majoris	δ Ursæ Minoris.
51	13	11	25m. 51. 37	26m. 51. 37
51	13	15	15h. 25 38. 26	15h. 26 38. 26
53	34	11	57m. 17. 43	58m. 17. 43
53	34	15	21h. 57 6. 05	21h. 58 6. 05
59	31	11	51m. 47. 46	50m. 47. 46
59	31	15	16h. 51 58. 75	16h. 50 58. 75
70	8	11	6 57. 55	5m. 57. 55
153	47	9	+14 34 25. 14	+14 34 15. 14
161	18	9	+18 39 37. 02	—18 39 37. 02
177	14	8	10h. 36 4. 12	19h. 36 4. 12
200	19	3	ι Capricorni	α¹ Capricorni.

Page.	Col.	At—	For—	Read—
389	4	- - - - -	Dec. — 41° 24	Dec. + 41° 24
390	3	ο Bootis	13h. 32m. 42. 53	13h. 42m. 14. 53
391	3	- - - - -	β Libræ	β Lyræ.
399	2	- - - - -	Aquarii. (2551)	Geminorum, (2551)
400	2	β¹ Scorpii	15h. 56m. 3	15h. 56m. 43
400	2	Ophiuchi, 5846	—24° 50′ 38. 94	—24° 44′ 55. 68
400	2	μ¹ Sagittarii	—21 5 31. 85	—21 55 31. 85
400	3	α Cephei	—21h. 24. 59	—21h. 14m. 59
400	4	δ Capricorni	—16° 47′ 18. 30	—16° 48′ 18. 30
402	1	Polaris	+88 30 33. 39	+88 30 33. 89
402	1	Bootis, (4812)	19h. 26m. 2	14h. 26m. 2
402	1	Libræ, (4854)	19 34 34	14h. 34m. 34
403	3	β Aquarii	+ 6° 13′ 42. 27	— 6° 13′ 42. 27
408	1	α Herculis	+14 34 3. 36	+14 34 53. 36
409	1	υ Capricorni	+18 39 33. 73	—18 39 40. 31
405	1	β Orionis	— 8 23 41. 25	— 8 22 41. 25
406	3	Weisse X, 859	10h. 45m. 54. 37	10h. 46m. 54. 37
407	2	Anonymous	13 53 31. 16	13 54 31. 16
407	2	Anonymous	+23° 55′ 58. 19	+23° 55′ 58. 19
413	2	A. Z., 126, 47	17h. 3m. 35. 96	17h. 3m. 33. 96

N.T
JW

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